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THE
Madras Forest College Magazine.

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The *September* Number being the *first* issue of every volume, or, year, of the Magazine, will be sent by V. P. P. for Rs 2-2-0, the payment covering all four issues of the year and the V. P. M O. commission.

It is not intended that the magazine should be run at a profit, so that as our subscribers increase, the magazine will be issued in a more attractive form. More illustrations, will then be possible.

It is the aim of the management to run the magazine for the Ranger-class (including Foresters) and mainly by their contributions. Correspondents are needed to supply suitable matter to maintain the magazine on these lines We feel confident that this appeal will not go in vain. There must be a number of our readers who have something of interest to write on.

Subscribers are requested to inform the Editor of all changes of address, and communicate with the Principal by name in the event of copies not being regularly received.

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THE
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Prize-day at the Madras Forest College.

On the 30th of June 1921 a distinguished gathering of officials, and non-official European and Indian gentlemen assembled in the Madras Forest College to witness the distribution of certificates, medals and prizes to the eighth batch of successful students. The Hon'ble Sir Lionel Davidson K. C. S. I. I. C. S. presided, and Lady Davidson very kindly distributed the prizes.

Among those present were: Mr. P. H. Clutterbuck, C. I. E., O. B. E., Inspector General of Forests, Mr. S. Cox, C. I. E., Chief Conservator of Forests; Messrs. D. T. Barry, C. E. C. Fischer; H. A. Latham, H. F. A. Wood, H. Tireman, Conservators of Forests, J. H. Longrigg, R. B. Cornwell, M. R. Ry. M. R. Sundram Ayyar Avl., Md. Abdul Karim Sahib Bahadur, Instructors of the College; Messrs. A. Wimbush, F. A. Seager, T. A. Whitehead, E. M. Crothers, the Examiners; M. R. Ry. Rao Sahib, K. R. Venkatramanier Avl., Mr. W. C. Hart, and other Forest officers; Rajah Vasudeva Rajah, C. I. E. of Kollengode, Messrs. Prabakara Tamban, M. L. C., F. B. Evans, Collector of Coimbatore, G. Y. Loveband, Assistant Collector, J. J. Cotton, District Judge, R. W. Davies, Mr. and Mrs. Parnell, Rao Sahibs Ratnasabapathi Mudaliar, (Chairman of the Coimbatore Municipal Council,) M. R. Ramasami Sivan, T. S. Venkatraman, Y. Ramachandra Rao, Mr. and Mrs. Ananda Rao.

The function began with the reading of the annual report by Mr. C. C. Wilson the Principal of the College, the report being as follows :—

"SIR LIONEL AND LADY DAVIDSON, MR. CLUTTERBUCK, LADIES AND GENTLEMEN,—The College year has once more come to a close, and we have reached the day which is, in our small world, the most important day of the year. In all spheres of activity, to those who are concerned, their triumphs and troubles seem of great, often of world wide importance. It is often difficult to see things in their true perspective, and to realise of how small real import many of these matters are. On the other hand, it is perhaps equally difficult for the outsider to realise the magnitude that these triumphs and disasters assume in the minds of those nearly affected. It is the realisation of these facts that constitutes true sympathy, and the presence of the many distinguished guests that we are privileged to welcome here today is the outward manifestation of that sympathy that we know many of you have with our labours here. It is a very great incentive to industry and a striving after efficiency on the part of all the students, not to mention the staff, at this College, to know that their efforts are watched and appreciated in a kindly spirit by their compatriots and fellow servants of the King-Emperor. What we want here is that every man shall try to do his best; some are better endowed by nature than others, but every man can do his best and anyone who really puts his heart into his work is pretty sure to make good. What we want here, then, are "triers"; and you Ladies and Gentlemen, by your presence here today, encourage us all to further efforts by this outward manifestation of your sympathy.

"An Institution such as this is greatly dependent for its smooth working on the friendly feeling and assistance of neighbouring bodies, and in its turn can do something to help them. I am glad to say that during this past year we have lived on terms of great harmony with practically all our neighbours. I think I am right in saying that the students of the Agricultural College and of the Forest College are on terms of the greatest cordiality. The two Colleges are indeed sister Institutions. I am glad also to be able to note that in our relations with the Coimbatore Municipality there has been less friction than has unfortunately often been the case in past years. We still have some small differences pending settlement but we sincerely hope that these too will be very shortly eliminated by that spirit of mutual good will and mutual help which is the foundation of all successful enterprise.

"To turn to matters that more immediately concern the College we find that the past year has been fruitful of many important changes. In the first place we must refer to a very great loss that the Forest College has sustained. Mr. Cowley-Brown has been connected with the College practically since its first inception, and we may say that nearly the whole of the present prosperity and smooth working of the College are due to his efforts in the past. He is one of the most Senior and best known of the Forest Officers in the Madras Presidency. He joined the service in December 1891 and spent his first few years in the forests of Salem. During the latter part of his service he was Principal of the Forest College, for a total period of 6½ years, with one interval of about a year and a half during which he was Conservator in the Northern Circle He was the first Principal of the Madras Forest College at its inception in 1912, when it was situated in the discarded Municipal Hospital in Coimbatore; he left the College just before its removal to its present site and returned again as Principal in 1917 to remain with us till the middle of last year when he went home on leave fully intending to return to the work which he loved so well. The condition of his health has now necessitated an extension of leave and it is greatly feared that this may be preparatory to retirement and that we may not see him out here again. If this is so it will be a great loss to the Forest Department as a whole and the Forest College in particular. He worked devotedly and whole-heartedly for the interests of the College and everyone connected with it,—students, staff and establishment. While he was here he had few interests outside the Forest College and during the short time it was my privilege to work under him I know that he spent the whole of his spare time in the service of the College; his main form of recreation was to devise schemes for the improvement of the Institution whose interests he had so much at heart, and one of the most outstanding results of this benevolent scheming remains with us in the form of the very comfortable students' Club, the erection of which was due mainly to his efforts. His retirement, if indeed it is as imminent as we fear, will be a serious loss and will I know be deeply regretted by all his friends, and by no means least by his many friends among the old students of the College.

"To turn to the work and conduct of the students. The camping during the past year has been in accordance with the sanctioned programme; but we have added two or three one-day excursions. These were to the fuel forests of the Mettupalaiyam Range and the Coppice with standards Working Circle at Walayar, the object being to give the Junior students some idea of the practical working of the Sylviculture which they were being taught in the lecture room during their first long head quarter term. November and December were as usual spent in the forests of Nilambur and Nedungayam; in January and February the Seniors camped at Dhoni where they studied the ever green forests and the modern metods of extraction which are now being introduced there; the Juniors in the meantime returned to our old camp at Kargudi in the Nilgiri-Wynaad where they spent a very profitable 6 weeks, learning fire-protection, scientific improvement fellings, assisting in the capture of elephants, bridging streams etc. The usual hill tour in the Nilgiris completed our programme and the students returned to Head Quarters for their final lectures before that most terrifying of ordeals——the final examinations

For their constant endeavours to make our tours comfortable and instructive the College is much indebted to those Conservators and District Forest Officers in whose charges we have camped. From the Ranger Officers upwards we have during the past touring season met with nothing but help and consideration. I am fully conscious of what a tax we are upon the resources of a District.

Our camping is of necessity often in feverish localities but on the whole the health of the College has been wonderfully good. But with very deep regret, I have to record the death of one student during the year: I refer to A. R. Venkataramanan, one of the most promising of the Junior students. He was a very nice boy, quiet, hard-working and full of initiative. He was a typical example of the type I have already referred to ; he was a real trier. He died in the middle of last March of acute and long-standing Malaria. He had not had much fever while at the College but he had suffered from it severely previously and had been greatly weakened and pulled down by it. He was a very promising young Ranger and his death is a loss to the Department. This sad event may point a useful lesson by emphasizing the great importance of the medical examination which we insist upon before accepting students at the College. The life is a hard one and the forests are unhealthy; only a man of sound constitution can expect to make good as a Range Officer.

In the Athletic line the past year has on the whole been a successful one. In the swimming test 20 of the Seniors and 28 of the Juniors succeeded in passing. Of the Seniors 8 failed and of the Juniors 6 ; it is hoped that these latter will pull themselves together and pass the test early next year. The Marathon race was won by N. S. Poonacha, a Junior student, in the very good time of 45 minutes for 7½ miles; the cup for this race, presented by the late Risaldar Major Amir Muhammad Khan. was won by the Junior Division. We were unfortunate in the sports in not improving on any of the College records. One man sprained his knee, another had no one to push him and get the best out of him, or things might have been different. The times were however on the whole good and the competition keen. The *Victor Ludorum* a challenge cup presented by Mr. Richmond was won by the Senior student S. Ramalingam.

As regards Gymnastics we have had no one of more than ordinary proficiency. As a matter of fact the students come here when they are generally well over 20 years old with their muscles already set and the majority of them have never seen, much less made use of a horizontal bar or the parallel bars or any other gymnastic apparatus. It is very difficult in such circumstances for them to excel at this form of athletics, which more perhaps than any other, requires practice when one is young and one's muscles are still flexible. During the past year, therefore, we have devoted rather more attention to Physical training and Sweedish drill than to Gymnastic on the apparatus. The students now have a quarter of an hour's physical training every morning at 7-15 before they go into their first lecture with, I believe, marked benefit to their health.

Our Hockey team got well together early in the season and succeeded in winning three out of their six Matches. We were however unfortunate in losing one of the best of our team before the tournament; he had his leg broken in a Hockey match in which the play had become most lamentably rough, and the result was that he could not play for us in the tournament. However we had a great fight with the winners early on in the tournament and thoroughly enjoyed our game.

In the Inter-Division Hockey Match the Juniors won the Challenge cup presented by Mr. Cowley-Brown after a good game by 5 goals to nil.

All the staff have taken part to the best of their ability in the College Athletics regularly, throughout the year, and this has no doubt done a lot to encourage the students to make themselves proficient and stimulate their keenness.

We do our best here to develop the bodies and muscles of, and inculcate a sporting spirit into, the young Probationary Rangers. To assist us towards the attainment of this end His Excellency Lord Pentland the late Governor of Madras presented us with a very handsome challenge shield to be competed for annually and held by the best all-round athlete in the College. This year we have had an exceptionally close competition there being less than five marks difference between the first four students S. Ramalingam came first and C. S. Ganapathy a very close second, only 2.4 marks behind him. These two Seniors were followed by the two Juniors Bandari and Poonacha; and, as I have already stated, there were not more than five marks between the four of them.

"The discipline at the College has during the past year been satisfactory, and the general tone has been good. Two students of the Senior Division had to be dismissed for grave misdemeanour. They have, however, owing to the clemency of the Chief Conservator, been permitted to return at the beginning of next year.

"Apart from this the conduct of both years has been good and I consider them to be on the whole self-respecting, courteous and manly young men.

"Till now out of the Juniors two have had to be sent down but for no fault of their own. Their educational attainments were not sufficient to enable them to profit by the course at the College; to keep such men here however much they may desire it at the time is a mistaken kindness; for they waste two years of their life and then fail to qualify for the profession which they have chosen, and have to begin life again.

"There is however a tendency among all the students which I very much dislike to see. I refer to the tendency to form cliques and factions which are continually quarelling in an unimportant sort of way the one with the other. The students' Club which it was hoped would serve to bring all classes at the College more nearly together has I am afraid only served to intensify these foolish factions. I use the word "foolish" intentionally because the matters about which the quarrels arise are generally of such very small significance as to make the whole matter absurd.

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"I may quote one instance of the humour of this regrettable side of our life. A certain student saw a servant stealing the property of another student. The matter in due course came to my notice and the student who had witnessed the theft quite gravely reported that he had told a mutual friend to go and call the owner of the property and inform him of the facts as he himself was not on speaking terms with him, This sort of thing is farcical and it is to be hoped we will hear little of it in the future. It is of course all due to that lack of a sense of perspective which is so useful in the affairs of this world. You Juniors must take these words to heart, patch up any differences you may have, and remember that it is up to you next August when you return as Seniors to show the new Division a good example and instil into them that tone and spirit which we strive to attain at the Madras Forest College and which is by no means the least part of your education here. You are not a bad year at all and we hope to see you do well; but you all have a lot to learn yet, and remember, all of you, Seniors and Juniors alike, that courtesy and self respect go hand, in hand and that an off hand or impolite manner is not a sign of true independence.

"I have still a few words to say before I come to the actual distribution of the prizes. And these are words of farewell. Next year when you, present Juniors return, you will have lost three of your best friends The Officer commanding the Junior Division camp Mr. Longrigg leaves us for a well-earned rest after two years at the College. Mr. Abdul Karim, the other Junior Division Instructor and

Mr. Cornwell the House Tutor are also departing to other spheres of activity after a good many years' devoted work in the College. All three Officers have been most deservedly popular with the students and their departure will I know be a great sorrow to many.

"Mr. Cornwell in particular, as House Tutor, Vice-President of the Athletic Club and Vice-President of the Students' Club will have come into close touch with all the students. The extra work entailed by the duties of these three positions is by no means light. But Mr Cornwell has always done everything that was necessary, and even more, with the greatest cheerfulness and goodwill; he seems to like hard work, and, if he gets really interested in a matter, he takes a lot of stopping. He has I know been a good friend to many of the students here both present and past and all will share with me my regret at his departure.

"The present Senior year who are about to leave us have among their number several students that I am convinced will make really good Range Officers.

"On the whole, the year is perhaps slightly below the average both intellectually and in the field; there are fewer students of outstanding ability than was the case last year. No student has obtained Honours. However no student has failed to obtain a certificate, and there are, actually, fewer "Lower standard" eertificates awarded, than was the case last year.

"Among the subjects that are outside their strictly legitimate course, one of the most useful that is taught here is "First Aid" to the injured.

"Of the present Senior year, 17 students have gained the St. John's Ambulance Certificate. These certificates have unfortunately not yet been received from the St. John's Ambulance Association and so cannot be distributed.

"I will now ask Lady Davidson to be so kind as to present the prizes and certificates gained to the students who have won them. As I read out your names I want you please to come up quickly and take your prizes."

List of Prize Winners:—

1 Best Senior Division Student. (Gold medal presented by the Madras Government).—T. P Palanikumaran.

2 The Campbell–Walker Prize. (Best all-round Ranger).—K. R. Murjani.

3 The Brazier Prize. (Best Outdoor Ranger).—N. M. Karumbayya.

4 The Lodge Prize. (Best student in Forest Engineering).—T. P. Palanikumaran

5 The Madras Conservators' Prize. (Best student in Forestry)—T. P. Palanikumaran.

6 The Indian Forester Prize (Past students).—L. J. Taylor

7 The Indian Forester Prize (Present students),—B. S F. Lebbai.

8 The Pentland Shield. (Best Athlete in the College) —S. Ramalingam. (Senior student).

9 Fischer cup (Best Gymnast in the College) —S Ramalingam. (Senior student).

10 Chief Conservator's Prize. (Best student in the Junior Dn) —P. Sithapathi Iyer.

"MADRAS RANGER HONOURS."

Nil.

"MADRAS RANGER HIGHER."

1 T. P Palanikumaran

2 K. R Moorjani

3 N. M. Karumbayya

4 K. Reguraman

5 D. Krishnaswamy Ayyar

9 V. N. Subramania Ayyar

7 C. S. Ganapathy (N.C)

8 A. Seetharamiah

9 C. K. Abyankar

10 P. Sankunni Nair

11 C. S Ganapathy (Coorg).

12 C. K. Gulrajani

13 A. R. Manuel

14 K. Venkatesam

15 M. P. Phillip

16 B. S. F. Lebbai

17 K. Raghavan

18 T. Perumall

19 V. R. Kamalapur

20 T. L F. Pereira

21 B. Krishna Rao

MADRAS RANGER LOWER.

22 T. M Krishnamachari

23 G. Venkatasubba Rao

24 S. Nageswara Ayyar

25 S. Ramalingam

26 I. Ramamoorthy

27 Noor Ahmed

28 B. N. Deva

ST. JOHN'S AMBULANCE CERTIFICATES.

1 T. P. Palanikumaran

2 D. Krishnaswami Ayyar

3 A R Manuel

4 T. H Krishnamachari

5 K. Venkatesam

6 M. P. Phillip

7 A. Seetharamiah

8 K. R. Murjani

9 T. Perumal

10 T. L. F. Perera

11 N M. Karumbayya

12 V. N. Subramania Ayyar
B. S. F Lebbai

13 S Ramalingam

14 C. S. Ganapathi (Coorg)
V R. Kamalapur
Nur Ahmed

"I will now close what has, I am afraid, been a rather tedious address, by expressing our sincere gratitude to Sir Lionel and Lady Davidson, Mr Clutterbuck, the Inspector-General of Forests, and Mr. and Mrs. Cox for making time in their very busy lives to come and visit us here and join in our small triumphs and sympathise with us in our small troubles. We very greatly appreciate their action and tender them our heartiest thanks. Our thanks are similarly due and we offer them whole-heartedly to the Examiners and Conservators who have so cheerfully undertaken the considerable extra work entailed by assisting us in our final examination and for the kind and sympathetic way in which they have performed the duties entailed."

Sir Lionel Davidson

then rose amidst cheers and delivered an interesting speech. His remarks opened with a reference to the award of the C. I. E. to the Chief Conservator, Mr. S. Cox in recognition of his successful administration of the Department. Referring next to the friendly relations obtaining between the Forest College and the Agricultural College, he suggested for consideration the feasibility of arranging for the exchange of lectures on forestry and agriculture specially devoted to questions where the interests of the two departments come in close contact. The Principal's report having made some mention of past friction with the Coimbatore Municipal Council, Sir Lionel stated that, whatever might have been the case in the past, he was quite satisfied that there was no reason to apprehend any future disagreements which could not be readily settled in friendly conversation; only that morning he had himself discussed with the Municipal Chairman—

whom he took that opportunity of congratulating on his recent election —one outstanding point of difference relating to the exact position of a toll-gate adjoining the Forest College premises. And the result had been an agreement to shift the toll-gate to another point in the vicinity which would remove any ground of complaint on the part of the Forest College without entailing any loss of income to the municipality or the toll-gate contractor. He had no doubt that the Chairman and the Principal would be able in a similar way to settle without friction the question of the contribution which the Forest College should make to the municipality on account of water supply if additional facilities should in future be made available under the Siruvani scheme.

He was particularly glad to learn that a visit to the Chenat Nayar Forest had formed part of the practical training of the students. He had recently visited Dhoni himself in the company of the Chief Conservator and Mr. Martin, the Consulting Forest Engineer to the Government of India, and had been much struck with the great possibilities of development through the application of modern methods of extraction and the use of mechanical appliances of the kind regularly employed in the United States and Canada. Mr. Martin had extensive practical experience of such methods and appliances and the Government of Madras had been most fortunate in being able to enjoy the benefit of his advice. A similar policy of development was perfectly feasible in other parts of the Presidency particularly in South Kanara, in

Tinnevelly and in the Agency Tracts, and given adequate supervision the prospects of increased revenue were immense. Apart from the officers in direct charge of such development schemes a Chief forest engineer would be essential for the purposes of general control and advice; and Sir Lionel much hoped that it would be possible in the future to secure the services of Mr. Martin himself for this responsible and important post. What he saw of the development works at Dhoni impressed upon him the need for constant and close attention to every detail of the working processes in order to ensure that the cost of extraction should be kept down to the lowest point. This meant that the rangers employed must possess a high standard of mental efficiency and the faculty of application. From the nature of the forests under development it was also essential that they should be men of strong physique and sound constitution. The medical examination prescribed for admission to the College ensured attention to this matter as the Principal had pointed out, and the improved methods of physical training recently introduced taught the students one method of keeping fit. But there was a danger to health to which they would be particularly exposed in the forests and against which they must always be on their guard, namely, malarial fever. They had a right to expect a certain amount of help against this from Government whose duty it was to provide them with decent housing and the best water supply available, while further assistance against the same risk had recently been furnished in the Javadis by a system of advances for the purchase of camp cots and mosquito netting. Sir Lionel regretted that hitherto as much had not been done in the former respect as the Government could have wished, but they hoped in the future to convince the Legislative Council of the imperative need to provide proper housing for forest officers and subordinates throughout the Presidency ; he was sure that Members of the Legislative Council would recognise that this was a bare necessity as soon as they became acquainted with the actual conditions of life in the forests. But that was not all. If the housing was perfect, the water supply ideal and mosquito curtains universally supplied, all this would be of no use if the men themselves were not continually on their guard against the risk of infection by mosquito bites. The precautions which it is necessary to take had, he believed, been mentioned last year in a special lecture by the Surgeon-General. Officers of great practical experience in malarious tracts were satisfied that personal care was a very strong factor, and this aspect of the case appealed so strongly to the Agency Commissioner that he had actually suggested to Government to consider whether the right to draw the special agency allowance should not be dependent upon the recipients keeping themselves free from fever. Perhaps this was going a little too far, but there was nevertheless no doubt that malarial fever was only too often the result of the neglect of proper precautions.

In congratulating S. Ramalingam on winning the Pentland Shield for athletics Sir Lionel expressed the hope that the district of Madura would take pride in this student's achievement in wresting that trophy from the little province of Coorg which had hitherto supplied all or almost all of the previous holders. Referring to the deplorable condition of the surface of the cricket ground and the inadequacy of the pavilion Sir Lionel promised to do all that was in his power to secure Government assistance towards removing these two serious defects, The Principal's remarks on the general excellence of the discipline and tone of the College suggested to him that this admirable feature owed its origin to the permanent Principal, Mr. Cowley Brown, who possessed in a high degree the faculty of combining a high standard of discipline with the closest association with the students under his care. He was satisfied that it was because of this true sympathy, or fellow-feeling as he would prefer to style it, that it was possible for Mr. Cowley-Brown to keep the standard of discipline so high. No student who had experience of Mr. Cowley-Brown's methods could ever feel that there was anything derogatory to his own independence in orderly behaviour and the observance of discipline. As. Mr. Wilson had pointed out in his report, courtesy and self-respect go hand in hand and impolite manners and rudeness are not synonymous with a spirit of independence. At the College the students and the staff had constant opportunities of association and learnt how to co-operate with members of other races, under conditions which showed that there was no real difficulty in such cooperation. Sir Lionel sincerely hoped that when the students went out into the world they would not allow themselves to be led astray by the will-o' the wisp of non-cooperation. Their training at the college should have taught them to avoid that danger, but attempts might be made to persuade them to join in the non-cooperation movement and there was the risk that some of them might find themselves exposed to the harassments and annoyances by which unscrupulous adherents of the movement sought to intimidate loyal servants of Government. There had been recent cases of intimidation in the Guntur district directed particularly against the forest staff and he desired to say publicly that if active manifestations of that kind should hinder forest officers in the discharge of their duty it was the firm intention of the Government of Madras to do all that was in their power to put a stop to them.

In the report the outgoing year was described as perhaps slightly below the average, both intellectually and in the field Sir Lionel was glad to find this description recorded. For, from what he had seen of the students it seemed clear to him that this implied that the College set a high standard. Further evidence of this conclusion was to be found in the fact that no "honours" certificates had been awarded; for this meant that the college staff and the Board of Examiners were determined to maintain the high standard of the past. How that standard compared with those obtaining in other Indian provinces was a matter in regard to which Mr Cultterbuck might be able shortly to express an authoritative opinion.

The students of the senior class were now about to leave the college and to enter upon their life work. There were great openings before them if they honestly endeavoured to keep up a sustained interest in their work and always tried to do their best. The first great advance possible was promotion to the provincial service and if in that service they continued to be real triers and ability was commensurate with effort, there was the further opportunity of rising to the Imperial Branch of the department; but this rise, they must remember, was dependent upon a rigid process of selection; only the very best could hope to achieve it. Sir Lionel was aware that both services, the Provincial and the Imperial, had grievances. He did not propose to refer on this occassion to the subjects of grievance, though he had hoped that it would have been possible for him to have made some definite announcement on the subject of the representations recently made to him by a deputation of the senior officers of the provincial branch. Unfortunately this was not possible as the matters in issue were still engaging the consideration of the combined Government and a final decision had not yet been arrived at. He desired, however, to assure those members of the Provincial service who were present that every endeavour would be made to meet such of their demands as seemed just.

Sir Lionel concluded by apologising for having kept his audience so long from hearing the advice which he knew they were all anxious to receive from their distinguished visitor, Mr. Clutterbuck, the Inspector General of Forests.

Mr. CLUTTERBUCK

then made the following short and interesting speech.

"As this is my first glimpse of Madras, I do not yet feel qualified to say much about forest work in this Presidency. I may say, however, that I have been much struck with the liveliness of the department here, and with the keenness of all the officers. Each one I have met seems to be toeing the line, ready to press forward wit development as soon as opportunity offers. In such competent hand I feel sure that forestry here has a great future before it.

"I am greatly impressed with this splendid College. I have not yet seen all the Forest Colleges, but I feel safe in saying that the Madras Forest College is second to none in India. The whole institution and organisation is excellent, and I consider the discipline, and smartness of the students reflect great credit on all the officers and instructors concerned. I congratulate them heartily on the results obtained.

"And now with your permission, I should like to say just a few words to the outgoing students, but my remarks may also prove useful to past students, and to the juniors who have only completed half their training." The speaker proceeded to discuss the necessity of continuing to learn after they had left College, and of exercising their imagination while at work. * * * *

He went on:

"Another point I should like to refer to is the importance of the career you have chosen. At the present time the greatest wish of all patriotic Indians is to help on India towards ultimate self-government. I think that the one thing that will help in this direction as much as anything will be the working up of India's natural resources. The development of the vast possibilities of the forests in India has hardly been begun yet, and we foresters must all work together to develop them to the utmost. In that way you will surely be devoting yourself to the true progress of India. It is a great thing for you to know that in your forest career you can help on your country more than you could do in most other careers.

"The definite aim of working up to ultimate self-government in India has changed many things, and we have to consider our usual procedure in many ways In the past, the Forest department has generally been content to leave its actions and work to speak for themselves, but now it behoves us to show our cards, so that the public may know what our ideals and objects are; for it is more necessary than ever, to win over the confidence of the people.

"I am very glad to have had this opportunity of saying a few words to you. I hope you will find some of the advice useful, and I wish all of you very successful and happy careers

"I am indeed grateful for the very kind welcome that has been accorded to me. I have been greatly impressed with all I have seen here and hope that before long, I shall be able to make a tour into some of the forests of your presidency I thank you all very much for your hearty welcome, and for all the kind hospitality that I have received."

Mr. S. Cox, the Chief Conservator of Forests then called for three cheers for Sir Lionel, and Lady Davidson, which were enthusiastically given A move was then made to the open space in front of the College where there was a large gathering of official and non-official Europeans and Indians, who had come in response to the invitation of the Board of Visitors and Staff of the College Mr. C C. Wilson, the Principal, received them, and introduced them to Sir Lionel and Lady Davidson.

Refreshments were then partaken of, and shortly afterwards the gathering broke up and the guests departed.

"Tectona grandis"—Winning Essay for the 'Indian Forester' Prize for present students.—

By B. S. F. Lebbai 1919—21 Division.

When seasoned, teak timber is brown, mottled with darker streaks, and turns grey on exposure. The annual rings are distinct and regular. The weight may for practical purposes be taken as 45 pounds per C. ft. The timber is moderately hard, strong, and characteristically scented and containing an oil which is easily preceptible to the touch.

Teak is the chief export timber of Burma and India, also the chief building timber of the country. The wood is exported chiefly for ship building, especially for the backing of armour plates and for the decks of most vessels, also for the construction of Railway carriage's and for the best class of house carpentry, being admirably suited for door and window frames furniture etc. In India it is used for all purposes of house building, bridges, sleepers etc. It is an excellent wood for carving, the Burmese carved teak wood being especially noted. Burmese carved idols of Buddah are prominent in almost every village in Ceylon. The wood is very durable as is shown by the Specimens in Colombo museum, still sound and good though about 500 to 600 years old. The durability is probably due to the large amount of oil in the wood.

The distribution of Teak in India can be classified into 2 Seperate regions viz:—The penisular area and the Burmese area. The Peninsular area has for its northern limit the rivers Nerbudah and Mahanadi but here and there it may occasionally be found north of this line while south of it, it scarcely occurs in Orissa or the circars. It is found in deciduous forests but seldom gregarious; and the most important forests found are (1) north Canara (2) Wynad, especially the tract known as Benue and Mudumalai (3) the Anamalai hills' and (4) Travancore. There is also considerable extent of teak forest in other parts of Bombay, Central provinces, South Arcot and mysore and the Nallamallais Hills of Kurnool. It is found sporadically throughout the Indian region and even in such dry apparent rocky hills of west Kurncol, patches of stunted more or less gregarious teak are not uncommon. Teak has been planted largely about stations all over India and Cylou. The chief of these platations is that at Nilambur in South Malabar.

The experience I had in some of the teak plantations assures me that it thrives well with a mean annual temperature of 72° to 81° and a rainfall of 50" and does better with a considerably heavier rainfall. It grows on various soils being best on sandstone and metomorphic rocks; but it may also be found on trap on which it grows well; on laterite, on which however, it is usually poor as in Nilambur; also occasionally on limestone; while on alluvial soils it sometimes shows a tendency to form nearly pure forests.

Teak in favourable localities if allowed to grow attains a very large size. In the Anamalais trees of 20 feet girth and 80 feet clear bole are not uncommon. It has very little tendency to branch lower down and has usually a clean straight bole surmounted by a large crown. Young saplings have a strong terminal shoot enabling it to pierce overhead cover, to obtain light. The size of exploitability is generally 7 feet in girth; or in the driest forests, 6 feet. I believe 150 years will in most cases be sufficient to attain this girth. In plantations with a suitable soil, climate and rainfall as in Nilambur a girth of 6—7 feet may be obtained even at the age of 70.

Teak is above all, an extreme light demander requiring full overhead light and free circulation of air. It seeds freely when quite young. I have seen in Ceylon, plantation-grown teak seeding even when 5 years old. Seeds germinate well if they get sufficient warmth and moisture to rot the corky outercovering and enable the hard nut to open. Seeds sown in nurseries often take a long time to germinate. In my experience germination is best if the seeds are simply mixed with sand and dead leaves after being thoroughly soaked, when a certain amount of fermentation probably sets up, and germination takes place; but directly this happens plants must be picked up and put in nurseries. This method is mostly followed in Ceylon. As Teak has a long tap root which resents being cut, it should not be kept long in the nursery, but must be planted when quite young. It has got a marvellous power of throwing stool shoots even up to a very late age. I have seen in Kargudi a stump with 231 annual rings throwing healthy and vigorous stool shoots. As with Sal and other species teak shoots usually die down yearly; they may be burnt or scorched by the sun, but others shoot up again to die down in the next hot season; this takes place yearly, until finally the tap root reaches a good permanently moist stratum, the shoots sent out are stronger and the plant gets the start as a tree. The management of natural Teak forests to ensure good reproduction and to increase the proportion of Teak is a difficult matter compared with other kinds ; but it has been ascertained by experience that great improvement takes place if certain well defined operations are carried out. They are, (1) not to girdle isolated trees unless with the object of releiving seedlings (2) to leave sound trees likely to improve in localities whence large timber can be extracted and (3) to begin tangya plantations with energy and to pay much attention in weeding such plantations In Indian Teak forests where there is little demand for the timbers of most of the companion trees, there is a tendency for teak, if it alone is cut, to disappear, so that improvement thinnings ought to be taken in hand in order to relieve the poles and saplings and seedlings of teak and allow them to grow.

The adoption of the system of concentrated regeneration fellings in Teak forests is a question which has already received a certain amount of attention particularly in Burma and it is one in which more tangible progress is required. Here we have a strong light demander of great value the supply of which is totally inadequate to the demand. The tree is ordinarily found amongst a mass of miscellaneous species many of which are of little or no value ; at all events the proportion of Teak might be increased without any risk and valuable teak producing ground which is at present lying unproductive might be stocked with a reasonable proportion of teak This can never be effected by means of selection fellings, hitherto in vogue whereby the proportion of teak will tend to diminish rather than to incease The numerous teak plantations in India and Ceylon prove that teak can be grown artificially in a pure state with success The oldest of the famous Nilambur plantions which were formed about 1842, now contains trees of about 7' feet girth in spite of frequent defoliation by insects.

The artificial regeneration of teak under a regular system deserves more attention than has hitherto been paid to it. Results of recent works go to show the great advantages to be derived from combining regeneration with tangya cultivation. Not only the success is as good as, if not better than, the natural regeneration but the cost (a very important matter) is considerably reduced. Should it be found that planting with tangya proves to be successful—and I can see no reason to doubt that it will—the method to be adopted will be to regenerate by planting with tangya. I believe that in future natural regeneration will give way to artificial regeneration as the latter is so much more certain and more easily tended.

The Nilambur plantations are an illustrative lot of concentrated regeneration fellings and the lessons to be learnt from them cannot be ignored They are situated in an extremely favourable locality for economic working, in which there is a strong demand for teak logs and poles of all sizes. There are great variations in the quality of localities in which they have been established and that taking all localities in which a full stocking is maintained up to a fairly advanced age 70 years a net annual rental varying between Rs. 5—70 per acre per annum is being obtained. These figures are only approximate but they give a rough idea that in localities suited to good quality teak the net annual rental is as high or higher than that obtained from any acre in any other timber forest in the world. On an average 1st quality really good locality an average girth of 6 feet has been attained in 70 years. Experience shows while maintaining the height growth and length of the bole, that by better tending, an average girth of 7 feet in the same period and in the same locality is possible. This however is only obtainable by the provision from an early age by means of thinnings at successive and correct intervals of an eqnal and adequate growing space for the proper development of the crown of every tree. Owing to the very rapid height growth of Teak at an early age, 15 -- 30 feet in 3 or 4 years in fairly good to very good soils and the extreme sensitiveness of teak to drip and to overhead and even lateral shade, the establishment of complete regeneration within the 1st year becomes essential for the provision of an even growth at the time of the 1st thinning which is required at 5 or 6 years of age. Naturally even spacing from the very start can be obtained only by artificial regeneration, but this is of minor importance compared with the establishment of complete regeneration within the 1st year. Whether this can be attained by natural regeneration is entirely a local question At Nilambur local conditions necessitate artificial regeneration even when regenerating pure teak plantation. The main factors in this instance are the low rainfall early in the growing season, April and May, and the relatively late burst of the monsoon only by 15th June as compared with some parts of Burma and this presidency, whereby natural seeds cannot generate before the beginning of July, thus losing 2 months, growth compared to nursery plants. In the majority of the irregular teak forests of this Presidency in which the proportion of teak is poor. due to the depletion and fallacious management in the past, artificial regeneration must unquestionably be preferred.

The case of the extensive teak forests of Burma and India is an important matter and by no means an easy one owing to the enormous area to be dealt with. These forests vary greatly in type The teak trees which as a rule form a comparatively small proportion of the growing stock are scattered singly or by groups amongst accessory species many of which are of no value. Hitherto fellings have consisted in cutting of teak trees which have reached maturity, a minimum girth limit being fixed with the proviso that seed bearers should be left where teak regeneration is absent .In the moistser type of teak forests where the tree reaches its best development, continued fire protection often does harm and encourages the growth of inferior species so that the regeneration of Teak has been effectually checked. Improvement fellings with the view of saving existing teak trees from suppression have been carried out to some extent but the enormous area generally to be dealt with prevents the operations being carried out to the extent desirable. The method of treatment hitherto followed for most teak forests is in no sense of the term a sylvicultural system. It doesn't provide for the establishment of normal regeneration nor does it tend towards the attainments of normal state ; even sylvicultural requirements of the species do not receive sufficient attention.

The teak tree has several insect enemies one of the most important being the caterpillar, *Hybloea puera*, which often appears by June and defoliates trees. The wood is also liable to very serious depreciation in value from the presence in it, of tunnels bored through the wood by an insect. These holes are caused by the caterpillar of a Heterocerous moth which bores right through the heart wood of the tree This cause of injury is not confined to dead or dying trees as this insect attacks green trees of any age.

"Trust in Him— He wouldn't fail."

Business Methods in Forestry.—

Winning essay for the "Indian Forester" Prize for past students; by Mr. L. J. Taylor R. O. Ambasamudram:

That the forests of the Madras Presidency are a source of vast industrial wealth is undoubtedly true, though very little attempt has been made in the past, to exploit this wealth in the most advantageous way.

This lethargy on the part of the Department, is the outcome of the policy of Government, who in spite of the large surplus, obtained from the revenue of the forests, returns a very small share of this revenue, for improvements, and general exploitation.

People in all parts of the Presidency are beginning to realise and feel, that there *are* benefits to be drived from our forests, and there is not the slightest doubt, that this feeling can be increased a hundered - fold by a proper management, and exploitation of our forests, and this we can only do, provided that Government sanctions the necessary allotment to the department, for the work.

The recent war has played a great part in the Industrial and Commercial activity now prevailing, and among other things, it has opened the eyes of the public, to the vast industrial possibilties, contained in our forests.

Mr. A. W. Lushington's book on "Madras Timbers" has helped a great deal to stimulate this idea, as it shows, by comparison, the relative merits of our Madras Woods, to those of other countries, and specifies the uses for which they are suitable.

To large commercial and trading concerns, the production of the book should be very gratifying, as it should enable them to obtain locally and at a reasonable price, timber, which previously they had been importing at a far greater cost.

The working of our forests, is after all, a commercial concern, and worked under sound commercial principles, should realise the maximum possibility.

How then, is this to be done?

As long as Government maintains its policy, of returning into the forests for improvement, the small percentage of its surplus revenue, as it is doing at present, we shall not attempt to answer that question.

No one will dispute the fact, that the utilisation of our forests is a sound industrial concern, and that any amount of money, initially spent to launch it on its progress. will ultimately pay itself back Initial expenditure in any great undertaking must necessarily be great, and if, instead of the "Streaky Bacon" method as the "Madras Mail" calls it, Government would only launch out the sum really necessary, for the proper industrial development of our forests, forestry would soon be a flourishing concern, instead of the year by year, "As you were" state, it is in at present.

That Government are at last beginning to realise the true state of affairs is evident by the sanction accorded, at the recent Council Meetings, to the project of the Russelkonda Saw-Mills, in spite of the violent opposition against it. But this is not sufficient and very much more of this sort of thing is necessary, if our forests are to be worked, as a really paying concern.

To gauge the possibllity of our forests, we should know them thoroughly, and to know them thoroughly, they should be made accessible. What we want then, are more roads and other means of communication. Where it is possible and will be of advantage, wire-rope-way, and tramways should be constructed, and all streams which would be suitable for the rafting or floating down of timber, should be utilised to their fullest extent. Drag paths and slides should also be constructed in all inaccessible places for the extraction of timber as in the Doni valley of Central Coimbatore Division.

At convenient and accessible centres saw-Mills should be constructed, and at the outset, all timber converted departmentally, and sold from there. This is only to show the commercial public, that the concern will pay.

The Research and Utilisation Officers, should work out the possibility and out-put of the forests down to details, and these details should be made available in the Chief Conservator's and all the Circle Offices, for reference, when contractors are advertised for.

Immediately it can be definitely stated that the thing is paying, enterprising contractors of large commercial firms, should be advertised for, and these contractors should be shown all the working details, expenditure, out - put etc. Once they are brought to realise that they are on a good thing, the whole concern, can be handed over to them, on contract, and not only will the departmental staff be then able to devote more of their time to their more legitimate work, namely the sylvicultural development of the forests, but the industrial development of the forests, will also be assured.

To turn now to the actual working of the department, another point in which it is defective, is in the drawing up of its working plans. The preparation of a working plan is in theory, quite a simple matter, but to actually apply and practice the prescriptions of it, is quite a different thing altogether. In some cases it is almost impossible to do this, with the result that there is an endless amount of correspondence and the plan has got to be modified.

It is very often the case that forest storage depots are specified in the plan, and according to the plan, the contractors are to use these only. These depots are often chosen at hazard, with the result that a depot of one series, is quite close to the depot of another series. This causes friction between rival contractors, who suspect one another of poaching. There also arises a competition in rates, for labour, the best paying contractor, getting most of it. This generally results in petitions to the District Forest Officer, and Conservator, and more correspondence.

If in drawing up plans, conferences are held, with all local contractors, and their collective opinions taken, on all the points, on which there is likely to be attached any doubt, it ought to be possible to draw up a plan, so that no difficulties will arise later on, when it is being worked.

Take again a working plan or a scheme, drawn up for planting operations. The scheme prescribes that a certain area is to be planted up every year. This prescription is strictly adhered to, irrespective of the fact, whether the last planted, was a success or not, very likely, fifty or even seventy five, per cent, was a failure, but the plan prescribes that an area is to be planted up every year, and so the work goes on. Possibly an attempt is made to replace casualities on this area, concurrent with the new work. This means, that the concentration and supervision on the new work is lessened, and things get from bad to worse.

Why not, when there is a failure, stop the planting in the new area, and go over the old area again? If there is continuity in this, and we see that each area planted is stocked, and in a fair way of establishing itself, before we go on with the next, our planting operations would be much more of a success, than they are at present.

Though forestry, it may be argued, has no bearing on work in the office, the two are not incompatible. Thoroughness and expediency in the former, mean efficieny in the latter

Office work in a Range, is generally as much, or more, than the Range Officer, and his clerk, can conjointly manage. It is very improbable that District Forest Officers do not realise this, and yet, work is unnecessarily created in their offices on matters, which a little trouble on the part of the District Forest Office Clerks, would elicit from that office itself. Another example of this, is the submission of the Annual Administration Report. The Range is the Unit, from which emenates most of the data, for the compilation of this report. These data, are submitted monthly by the Range Officers, in the form of statements and returns, and yet, in spite of this, at the end of the year the Range Officers are called on to submit again, in a consolidated form, what they had already been submitting every month. Why could not these monthly statements and returns be consolidated in the District Forest Office itself? The mere fact that it is not, suggests to one, the shirking of responsibility, which is thrust on the Range Officer. Is this fair? Again, look at the waste of stationery involved, by the submission of these unnecessary reports. And yet, there is talk of paper shortage and waste!

To sum up then, the measures necessary for the working of our forests on more business-like principles firstly, Government should relax their policy of stinting money to the Department. The Chief Conservator, as the head of the department, knows exactly, what is wanted for the progress of the department, and all schemes sent up by him, should receive the consideration of Government, and the necessary allotment sanctioned for them. Secondly, the forests should be opened up, by roads, tramways, wire rope-ways etc., Saw-mills established at convenient centres and the forests worked on more commercial lines; Thirdly working plans should be prepared in a more definite and practicable manner, and lastly, office work in Ranges, should be minimised to the fullest extent.

A ranger is an executive Officer, and if he is to be burdened with office work, he cannot be expected, to devote as much time as is necessary, for executive. By cutting down then the office work, he will have more time to devote to the improvement of his forests, which, if they are to be worked as an industrial concern, is an absolute essential.

"SPERO MELIORA."

Forest Life in India ;—(continued).

II ON TOUR.

(*Reprinted from "The Varsity" May 13th 1913*).

When the District Forest Officer goes out into camp, as already explained, he takes with him several cartloads of furniture and a lot of servants. His work is going to keep him occupied during pretty well the whole of every day, and he will be moving camp on an average once every four days. To be continually packing and unpacking his own baggage is out of the question, as he has not time for it. He therefore takes with him a 'dressing boy,' whose duty it is to take care of, and pack and unpack all his personal effects, and clothes, make his bed, and do his room. He also takes a 'camp boy,' or 'butler,' to superintend the running of the whole establishment. And on the competence of this individual depends the whole comfort of the tour. It is also necessary to take a cook and a waterman; this latter, as his name implies, devotes his life to carrying water for his Master's baths, which are many.

In addition to these, every pony taken into camp—must be accompanied by a 'syce,' or groom and a grass-cutter, as hay is rarely obtainable. For official odd jobs, such as taking messages, keeping the office table tidy, packing and unpacking the office books and papers, which have to be taken into camp, each District Forest Officer is provided by Government with four peons. It is usual to take two of these on tour to help in moving camp and to leave two in the office in head-quarters to bring out official letters and papers, known by the general name of 'tapal.' The arrival of the daily tapal is a matter of some moment, as on the size of it depends whether the next 24 hours is going to be a pleasant or an unpleasant time.

It will thus be seen that a considerable retinue follows a forest officer who is in charge of a district when he goes on tour. When a probationer first goes out to India he is put under a senior D. F. O. (District Forest Officer), and he goes on tour with him, to learn the work and see the way things are done, and generally acts as personal assistant to him for the first few months As, however, he at first knows little or nothing that is useful, he rather adds to his senior's work than otherwise. He is then put in charge of a range, and later on of a sub-division, or he is put on special duty such as preparation of working plans, finally rising to the position of D. F. O. himself. The position is reached with a rapidity, that varies in the different provinces, and in those that are short-handed the 'assistant conservator' may find himself in charge of a district within a year or eighteen months of landing in India.

Now that the position has been more or less described let us follow out a typical tour. Having sent on his baggage on the previous day the D. F. O. gets up about 5.30, has a light breakfast known as "chota hasri" and proceeds in the cool of the day on horseback or by motor bicycle to his first camp. This will probably be in the traveller's bungalow of some big native town within seven or eight miles of his forest, which is the head quarters of the "Range" he intends inspecting. Each district is divided up into "ranges," four or five to the district, and in charge of each of these is a "Range Officer" usually an Indian. On his arrival at the traveller's bungalow he has a bath and breakfast, and then the Range Officer is interviewed and receives his orders, and a general plan of the tour is arranged One or more days may be spent here according as there are timber or fuel depots to inspect or outlying patches of forest, within easy reach, to be visited. In these native towns there is often much that is of interest apart from forest work. One day a couple of little brown men may appear, clothed in what would scarely make two decent sized handkerchiefs and armed with curious musical instruments made of gourds or reeds, who will assure you that the prickly pear hedges round your compound are infested with poisonous snakes. For a few annas they will get to work with curious solemn dancing and weird tunes to charm the snakes into the open and will catch them in their naked hands with wonderful dexterity, and bear them away, with profound salaams to the "master"—the profoundness of the salaams being in direct ratio to the amount of the present they have received. I have never known any of these men fail to catch at least one snake, but whether or not they have put their quarry in place beforehand it is difficult to say. They will never allow one to kill the snakes they catch in this way, their ostensible reason being that their captures must be slain decently and in order, with the proper rites and ceremonies, or they will lose the power they have over their kind.

Another day a quaint figure clothed in most voluminous robes will arrive and squat down on your verandah and proceed, if allowed to do so, to show you the most wonderful conjurring tricks. you may sit as close as you like and watch as carefully as you can but never will you detect the slight of hand by which nearly all the tricks, are done. Or a tall Mahommedan may appear with an unfortunate half-starved bear, that he will put through its paces for the usual tip of eight annas or so.

Then, when the necessary work in the range headquarters is finished everything is packed up again and camp is moved to some forest rest house, situated in the heart of the jungle, and here the real forest life begins, and the Forest Officer is more at home. The hill men all know him, and come to him for medicine, advice and help. He wanders out in the early morning or the evening with his gun and his native 'shikar,' through the glades and by the pools he knows so well; and in the evening after dinner he sits in his verandah and listens to thousand noises of the jungle, the cries of the animals, and the buzzing of the teeming insect life. The hill man is much nicer and simpler and more honest than his semi-educated brother of the plains. I remember one little hill man, a 'forest guard' who caught a timber thief redhanded, and promptly ran him in. The offender was the son of a wizard of some repute, and dire were his threats of what would happen, to any one who interfered with him. However he was handed over to justice, and punished and the matter passed out of my mind. Some month or so later I was out with this same forest guard, who was a great shikari and he seemed tired and unhappy. On being questioned he revealed this trouble. The result of interfering with tbe son of the wizard was beginning to manifest itself. The great one's threat had been that his captor would die within a year, and that he would die slowly, beginning from his feet and legs so that he couldn't walk, and now the curse was beginning to make itself felt, and he was feeling very weak. My promises of medicine—even of burning bitter medicines—were of no avail. This was a matter that no medicines could help. Next day my boss, a senior District Forest Officer of long experience, arrived to inspect the forests, and I mentioned the matter to him. He advised giving the little forest guard some coloured Christmas candles to burn in front of his hut, as he had always found them efficacious charms.

I wrote off for some at once. and in the course of a week or ten days, they arrived. By this time I had changed camp; however I sent for the afflicted one, and he came, doing the ten miles march with apparent difficulty. Then I gave him the four coloured candles—wonderful charms I had concocted—and instructed him to place one in each corner of his hut and with suitable incantations light all four at precicely the same moment. Then they were to be allowed to burn right out, and *if* all expired at the same moment he would surely die and nothing could save him, *but* if they went out one after the other all would be well and his enemy the magician's spell would be broken. He took them and wrapped them up tenderly in a dirty end of his cloth, and went away more hopefully. Next time I met him he was radiantly grateful, and with 'cubber' of a fine stag, and willing and able to walk me off my legs in search of it.

In these jungles there are of course no shops and the Forest Officer lives on milk, eggs, and tasteless stringy chickens, a continual supply of which has to be arranged for. These supplies may be purchased in any native village, and when right out in the jungle a runner has to be paid to carry them two or three times a week Apart from such food and the tinned stuff he may have brougt with him, neither the Forest Officer nor his followers get anything except what he may shoot. There is, therefore, an extra inducement, apart from sport, in any shikar the forest may have to offer. And great is the rejoicing in camp when the master kills a bull or a stag, Even the big red jungle squirrel does not come amiss after a continued diet of curried chicken, chicken chops, and roast chicken and jugged or roast squirrel, or squirrel soup, is quite an addition to the menu. After a month or six weeks of this sort of life some matter usually crops up that requires the District Forest Officer's presence in head-quarters, and then everything is once again packed up and the return journey is made to civilisation with its attendant joys of tennis, bridge, and society.

CHOKRA.

Three years among the sholagas.

Of the many tribes that inhabit the western Ghats, the Sholagas are as important as any other. They form the main source of labour in all forest works, and as such, it is only meet that we should be acquainted with their life, manners and customs, a study of which is as useful as it is interesting.

The home of the Sholagas is the forests of the Coimbatore district, where only they are known by this name. Their villages are extremely small and isolated, and are generally situated in the close proximity of some deity perched by the side of a gentle running rivulet, where the worship of it and the hope of being protected by it might have induced them to settle down.

One of the most backward of all classes, the Sholagas have not yet come under the sway of civilization. The unhealthiness of the climate, the wild characteristics of the surrounding country the difficulty of access into their mountain dwellings and the timidity of their character are some of the main obstacles in the path of civilization. Their huts are very dingy and narrow, built by themselves on rude and antiquarian principles. Dirty in their dress, their persons are still dirtier. Their occasional trips into the neighbouring villages of any considerable size for earning their livelihood and purchasing provisions, bring them into contact with higher civilization and this they inculcate into themselves in course of time. They speak a dialect of Canarese, with a peculiar accent, that cannot be easily imitated by any other than a Sholaga. None of them knows how to read and write, though much is being done for their education.

The climate of the country has much influence upon their personality. Malaria is a common visitor among them. A person laid up with Malaria will care for it no more than an event in the ordinary course of every day life. The mountain herbs constitute their principal medicine and they serve them equally well for fracture broken heads, headache, stomachache and fever. It is only on the direst necessity that a Sholaga will apply for help to a village doctor of any pretensions.

Whatever it may be, brought up under hard conditions and subjected to the extremes, the Sholaga is generally hardy and strong We will not be far from right if we picture to ourselves the Sholaga as a stalwart man of medium stature of black mein, with unruly curly hairs tied into a knot, his head shaved in the front and the moustaches trimmed to order, dressed in meagre and threadbare clothes having a blanket thrown negligently on one shoulder and on the other a weighty axe his inseparable companion placed at rest, his eyes always on the alert to catch the slighest movement among the bushes or of bees from the honey-suckle, and walking with steady steps on the rugged paths of his mountain home. Able bodied as he is, he is more timid than he is brave. He is not so much atraid of the wild animals as he is of an outsider. He dreads goblins and ghosts more than anything else.

The occupation of the Sholaga consists mainly of podu cultivation, daily labour and poaching. In his podu the Sholaga cultivates ragi' cucumber, pumkin and such other food materials When Mr. C. M. Hodgson was the District Forest Officer of North Coimbatore Dn. the sholagars were encouraged to grow wheat and mustard in their podus, the seeds for which were given them gratis. This attempt was crowned with complete success, so much so the sholagars made a good profit out of it.

Of handicrafts the sholaga knows none. As an axeman he is unrivalled. In constructing his huts, squaring timbers and converting them into planks it is the axe that plays the main part. But for his efficiency in this respect, the sandal wood extraction which is carried out on an extensive scale in the North Coimbatore and Kollegal divisions, would not have been so well executed as it is.

It is the Forest Department that chiefly takes in sholaga labour. The sholagas are given podus for cultivation and settlement, inside a Forest, free of any assessment. In return for this they are bound over to the Government to serve as coolies, whenever called upon, accepting the normal wages. Thus the Forest Department is much benefitted especially in the unhealthy and remote regions, where, to get coolies from outside would have been highly expensive, inefficient and difficult. In earth work, the sholaga is not in his element. My attempts at times to repair roads etc, when 'Wodders' from the plains were not to be had, were thorough failures. The sholaga is known best as an axeman.

Coming to their manners and customs, I shall only deal with the three main charecteristics of the sholaga life, namely their fealty to the headman, marriage customs and hospitality.

The headman is the most important personage in a sholaga settlement. Generally he will be the oldest and the most experienced of the wole lot. He decides their quarrels and disputes and stands for the whole community when occasion arises. In many instances the obedience of the rest to the headman is simply exemplary. All bad conduct on the part of the tribesmen are severly censured, punished and often fined by the headman. Any man acting against his decision is made an outcaste Every sholaga house will shut its door against him He will not be given either fire, water or the simple foodstuffs eventhough he be starving. Neither will he be allowed the right of worship in their temples nor the privilege of messing in society. In short, he is denied even the slightest obligation. This treatment brings round the stubbornest of the sholagas, and if the bolt of excommunication is to be with -drawn from him, he has to pay a penal fine, treat the whole community in a common mess and ask forgiveness in the open assembly. When this is done, the natural feeling of hospitality inherent in the sholagas, like the redhot embers lying under the cover of a thin layer of ashes, blazes out in all its effulgence, and every help is rendered unto him to the best of their ability, so that, the unfortunate man feels remorse and shame for his past beastly conduct.

Further than this, the headman can make friends and foes, for the whole community. Any Forest subordinate or contractor who is in need of labour, will do well to apply to the headman, for any disobedience of his classmen to his order will not end there.

Their marriage customs are anomalous and antiquitous. There are three different kinds of marriages in vogue among them. The first is the best of the three and that is marriage with the full consent and best wishes of the parents and relatives. This sort of marriage is not very expensive. The bridegroom has to defray the expenses of a new set of clothes for the bride and of a single day's feasting to which all will be invited. There is no luxury what-so-ever in a Sholaga feasting. There we can see frugal fare in plenty. The use of spirited liquors is considered sinful. After a sound helping at the rude victuals, the merry men will sing and dance to their ancient lays. Then, there will be plenty of blessings and little presents on the part of the guests and the whole will retire.

The second mode of marrying is abormal even though it be interesting. When a Sholaga falls in love with a girl and finds that either the love is not returned or that the parents of his dear one are not a party to it, he takes recourse to violence. He lies in ambush near the stream or well whence water is usually taken and when the girl in question comes to take water, he carries her off into the interior of the forests and there marries her in secrecy. After a day or two, he returns with his bride into the village and there the marriage is celebrated.

I shall not describe here the third method of marrying, lest it may appear horrible to the minds of the gentle reader. It will suffice if I say that their marriage ties are very loose and both men and women are allowed remarriage when love fades and beauty decays, no matter whether the husbund and wife be healthy or unhealthy, dead or alive. This custom is much in practice among the Sholagas. In such cases the new husband has to pay a sum of nearly Rs, 100 to the late husband of his new wife which is five times the actual expenses of a marriage of the first order.

If their marriage customs want reformation, their hospitality draws forth admiration. There is nothing so laudable in a Sholaga as his hospitality. It does not fall far short of the sweet family welcome of ancient Scotland described by Sir Walter Scott in most of his immortal novels. What little he has, he will share it with his guests. The warmest corner of the fire side will be alloted to the guest and there they wil sit and chat of olden days and tell stories often told.

The religion of the Sholagas is Hinduism. They worship many Gods under various names. Very often they perform rituals and sacrifices either to please their Gods, or to wash off their sins or as an attonment for crimes comitted. They are highly superstitious and credulous.

Thus, as above described, are the life, customs and manners of the Sholagas who are so very useful to us. As a cooly in important forest works, such as sandal wood extraction, timber operations, fire line works, honey collection and last of all but by no means least, as "shikari" or guide in the forests for sportsmen, the Sholagas are invaluable. In many ways they are being encouraged now. Some of them are employed in the Forest Department as foresters and forest guards and have given sufficient proof that the trust is not misplaced in them. Mr. C M. Hodgson wanted to educate them according to the elementary principles of modern education. Two schools were started, one at Hasanur and the other at Kavalur both in the Satyamangalam Range, where the Sholaga children where not only educated but also fed. The school at Kavalur thrives very well, and special mention of it is made in a refrence published by the Publicity Bureau on the depressed classes. Systematic and punctual payment, fellow feeling, obligation and honesty are the qualities which bind the Sholaga to us, and when once we have won his heart we will know that the Sholaga is the best servant of all.

P. A. VENKATARAMAN.

M. F. C. 1921—23 Division.

Fire Protection and its difficulties in the Mudumalai Forests.

The history of these forests may be said to begin from 1857 when they were taken over by the Govt., on a short lease of 6 years from the Tirumalpad Raja of Nilambur. During this period the main object of management was to remove the maximum quantity of timber possible from these forests. No regular working plan was drawn up prescribing the nature and the extent of the fellings to be made, and the methods to be adopted for ensuring the regeneration of the principal species. When the lease was about to expire, it was extended to a further period of 99 years, and the heavy fellings that followed resulted in a mass of branchwood and debris lying in the forest and the opening of the canopy. These again produced the inevitable result of an immense growth of grass and severe forest fire which annually overran a great part of the working circle making it appear, as though it was under a process of conversion from a High Forest to a grassy Savannah

No steps were taken to combat them. The special establishment which was at work there was slowly withdrawn until at last there was left only one Forester to look after these in addition to his other duties at Masinagudi. With this wide charge under him and a very poor labour at his command this Forester could not do much by way of preventive measures. This sad state of affairs continued without any great change down to the year 1907 when a working plan was drawn up which provided for the fire protection of the compartments worked over under Improvement fellings, for a period of 5 years, by means of fire lines 100 ft. wide. As regards the Mysore Frontier line it laid out that the entire width of the fire line was to be 300ft. which should to be fire traced in good time by the officers on both the sides working together in harmonious Cooperation. The Jenkurubars of the wynaad tracts were to be enlisted for service and encouraged to form permanent settlements inside the Government Forests. But all these worked unsatisfactorily and the Jen kurubars proved a much harder people to deal with than they were originally thought to be. They preferred living on the uncertain remuneration of the Minor produce contractors to the more certain and peaceful life offered by the Government and went about from place to place with torches in their hands which they unscrupulously used in burning down the heavy growth of grass to make it easier for them to pick up the Minor products and to find their game more easily.

A second working plan was prepared in 1910 which laid great emphasis on the fire protection of the Frontier, and the opening up of a network of smaller lines within the forest which would enable us to localise fire or at the worst serve as good bases for counterfiring against a long line of wild fire coming in at a furious rate. In accordance with its prescription a number of fire lines were opened so much so that at the present day there are nearly 130 miles of them in these Forests. Most of them were till so late as 1919 closed ; i. e. the standing trees on them were left as they were, only the grass on the ground being cut and burnt. This method didnot ensure through burning and consequently all the trees on the fire lines are now being removed thus opening out the lines as well.

By far the worst fires in these Forests are said to come from the side of the Mysore state Forests. In spite of the continued attempts at keeping these out, the history of the last 30 years only shows very few years in which they were absent. No wonder then that after all this experience, there are still doubts expressed by some officers of the service as to the efficacy of fire protection and the best methods of attaining the same. Not very many years ago one officer of the superior service, under whom I had the privilege to serve for a while told me that the conventional method of fire tracing could not really serve the purpose. If a man wanted to set fire to the Forest no amount of fire lines would prevent him from doing so. Neither is it possible for the small protective staff to be on the lookout for such incendiaries and bring them to book; prejudice against the Department and its members, ignorance of the ultimate purpose of the state in reserving these Forests and a blind notion that the forester is essentially an antagonist to the agriculturist all these go a long way to explain the wilful action of such incendiaries. Any change in their attitude can only be effected by slow degrees and by the exchange of mutual good will and confidence.

It sometimes happens that fire gets in as the result of an accident, as when fire tracing the lines, and the vast store of readily combustible material in these forests really makes it an impossible task to control it effectively and extinguish it soon. The more important lines are situated in such far and out of the way parts as on the frontier line that with the poor labour available in Kargudi, their complete clearence is only of doubtful occurance in any year before the fire season sets in. The problem of finding out the requisite labour for the purpose, is one of grave difficulty and has tried the patience of not a few of the officers put in charge of these forests. The Jen kurubars, as already stated, are lured away by the contractors, and, we cannot hope to get them to our side so long as the contract system is in vogue. If it is discontinued, these men will be thrown out of work and we can by slow degrees bring them round to look upon the Department as their friend and protector. As many as possible of them should be employed by the Department on monthly pay or weekly wages, and paid in kind rather than in money. It is in their money dealings with the grain sellers that these éllicit children of the forests often get into trouble Not knowing the mysteries of accounts these men are easily entrapped by the unscrupulous dealers who, somehow manage to sell them goods above the value of their pay or weekly earnings. The excess amount not being cleared then and there, accumulates, and in a few months the poor fellows are forced to sell their cattle or pledge their plots of land to their creditors These who do not possess either kind of property try to evade as far as possible and in extreme cases run away from the localty with their wives and children if any. A similar thing happens in the trail of some of the minor Forest Produce contractors. These two classes of men are, in my opinion, largely responsible for the misery of the hill tribes in these parts, whose presence in large members is of great value to the Forest officer. When these are provided against the hill men can be brought to a permanent settlement wthin the forest, and induced by promises of appointments, or money, or land, to bring in more and more of their kinsmen to live with them in the same or similar settlements

Then as regards the operations to be carried out, there is not much to be said. The work of cutting guide lines, and fire tracing them later on, can go on as usual for all the interior fire lines. Along the frontier, and along the more distant lines early burning on a small scale may be tried. This operation is of extreme simplicity, when it is once well understood: but in the hands of irresponsible men is apt to become more dangerous than the worst fires of any season· Great care in neccssary on the part of the officer in charge to see that the instructions are obeyed to the very letter by the subordinates deputed for the operations. The subordinate and a batch of well trained coolies should be constantly going over the area to be experimented upon, and wherever the grass is found to be dry enough to catch fire, it should burnt, care always being taken not to burn large patches at a time and allow the fire to spread wide and become uncontrollable. The secret of success of this operation is its easy controllability when compared with late burnings. The season at which to begin this should not be later than November, which time is specially chosen as, then, the grass is more green than dry, and any fire can be easily brought under control. If this is successfully done, it may be adopted as a permanent fixture in the plan of operations of the future and can be slowly extended to all the exposed sides of these Forests.

P. SITHAPATHI AYYAR.

M. F. C. 1920 - 22 Division.

Athletics.

CRICKET.

An interesting match was played on Sunday the 7th August 1921 in Mr. Narasaiah's compound between the Coimbatore Gymkana club and our College, terminating in a victory for the club by 37 runs.

The club team winning the toss took to batting and scored 106 runs ; when the college went in to bat, the bowling of Mr. Sullivan was a bit too much for them, most of them being out of practice ; they evidently lacked confidence in playing such fast balls, with the result that all were dismissed for a poor total of 69 runs, of which Mr. E. K. Krishnan was responsible for 25 runs in good style.

HOCKEY MATCH.

Madras Forest College Vs Agricultural College, Coimbatore, at the Agricultural College Grounds.

One of our most keenly contested Hockey Matches resulted on 11—8—21 in the defeat of the Agricultural College, the runners up of last year's Hockey Tournament, by a good margin of 4 goals to nil.

The game started punctually at 5-10 p. m. The ground was soft, and this accounted for the game being slow to start with.

During the first half, our new captain (M. B. Aiyana) made several clever runs and centred the ball in spite of good defence. These centres were however not made full use of by our other forwards.

M. M. Mandanna— our centre forward— made several mistakes in the first few minutes of the first half. The ball was apparently too slow for him ; but with a little cheering from outside the field, he pulled himself together and did himself justice by registering the initial goal with a pretty shot at 5-28 p. m. From this time forward he kept his eye well on the ball and began to attack his enemy with his usual undefeatable offence

Straight from the centre bully our forwards dashed into the opponents' ring and at 5-30 p m. Hassunudin khan added the 2nd goal to our credit. The play became more interesting now and our defence had to sustain several violent rushes, which however they succeeded in beating off.

5-40 p. m. Half Time.

At 5-46 p. m. M. B. Aiyana (cap) made a clever run along the right-boundary line and centred the ball beautifully: the pass was cleverly taken by Hadi Hussain who lifted the ball and shot while it was in the air scoring a brilliant goal at 5--50 p. m. Aiyana made another fast run through two of his autogonists and with a bit of clever stick-work gave the ball to the centre forward who scored the 4th goal.

The last few minutes' game was of necessity a specially fast one; and a fast shot by the centre forward (M M. Mandana) was well saved by the opponents' goal keeper.

N. S. Poonacha and K. Annappa Bandary, deserve great credit for the invincible defence they put up and for keeping the ball away from our goal line.

M. B. Aiyana (cap) played a good game. It was really a pleasant sight for the spectators to see how he dodged his opporents with his quick wrist work and fast runs Indeed we were very unfortunate last year in his breaking his left leg on the Hockey-field thus depriving us of one of our best men. We however are much pleased to see him back again in the battle field to fight for his college and we fervently hope that he will lead his men to victory at every battle and so advance the fame of his college.

16—8 -21

The return hockey match with the Agricultural College team was played this evening on our grounds, play starting at 5–15 p. m. and resulted in a win for the Agricultural College by 3 goals to 2.

The game was a fast one from the start, and the visitors played a better game than in the previous match, and passed on our lines several times to find our full-backs too strong for them After continued pressure however their inside left succeeded in registering the first goal to their credit at 5 - 23 p. m.

From the centre bully the ball was again taken into our ring and a fast shot was nicely put out by our goal-keeper inspite of a good offence. Our Captain (M. B. Aiyana) took possession of the ball and making a fast run centred the ball beautifully, but our inside left failed to take it A little later however, Hadi Hussain our outside left made a clever run and secured the first goal to our credit at 5 - 37 p, m. Our men continuing the offence made another strong raid and a shot by our centre half (Principal) was ably defended by the opponents' goalkeep. Encouraged by the continued cheering of the spectators our forwards with a litle bit of fine passing registered the second goal for the college amidst a thick defence, Hassunadin khan being responsible for the goal scored and ably supported by Bodas.

5 - 45 p. m. 1/2 Time,

At the opening stage of the second half at 5 - 50 p m. the visitors heavily attacked our goal which held out gallantly,

The inside left of the opposite side secured the ball and dodging our men made a fast run persued by one of our men K. A. Bandary who was just in time to hook him just as he raised his stick to shoot an easy goal, and sent the ball with all his might far away from our circle: and it was unfortunate that he gave "sticks" at this moment as he tried to give a strong drive, and the visitors succeeded in shooting the second goal against us off the penalty hit given for the "sticks", and this made the score equal.

For the following 4 minutes our men kept on pressing their opponents and Hassunadin khan just failed to net the ball. Our men made great efforts to put in a third goal but failed. M. M. Mandana—our centre forward—with the help of his partners threatened the opponents' goal and the custodian in trying to clear gave us a short corner which however we failed to convert.

The opponents secured the ball and dashed into our open line and from the middle of a confused scrimmage in the goal mouth scored their third goal against us thereby gaining the lead.

The passing of our forwards was too wide and the shooting bad, and their biggest mistake was failure to part with the ball in time K. A. Bandary and N S Poonacha played splendidly for their side. Havildar Kader Bachah deserves special mention for his brilliant defence of the goal.

S C. RAMALINGAM,
Athletic Secretary.
M. F. C.

Miscellanea.

Balsa-Wood.

During the war 'balsa' wood was the material used for the 70,000 mine buoys which stretched across the North Sea, proved so effective a barrier against German submarines.

When we wish to express the limit of lightness, we say that a thing is 'light as cork;' but balsa which is the wood of a tree native to the tropics of America, is lighter by one third than cork

It is not at all like any other kind of wood. Instead of having a fibrous structure, it is composed of hollow, thin walled cells containing nothing but air. To prevent it from rotting it has to be treated chemically by a process, which, incidentally renders it water-proof.

The Navy Department during the war, equipped our fighting ships and transports with large numbers of ring-shaped liferafts made of balsa wood and covered with canvas.

This curions wood is used for hydroplane pontoons, for toy airplanes, for surf boards and for sportsmen's decoys. Relatively to weight, it has far greater structural strength than any other kind of wood. It is coming into extensive use for refrigerator compartments on ships, and is thought likely to prove equally serviceable in refrigerator cars, and cold storage ware houses.

Extracted from "The Madras Mail"

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New Sources of pulp and paper

The Direction in Which the paper Maker Will Turn When His Timber Supply Is Gone—By Thomas J. Keenan, F. C. S,

The growing scarcity and ascending cost of the raw materials used in the manufacture of pulp and paper are reflected in the prices which consumers are required to pay for the finished product. The larger city dailies appear to be less affected than the country weeklies and trade journals, for the reason, perhaps, that most of them obtain their supplies direct from the paper mills on long-term contracts or else control mills of their own, the entire output of which is absorbed by them.

The body of all newspaper sheets consists of pulp produced by a mechanical process of grinding logs of spruce, balsam or hemlock against revolving stones in the presence of water. This pulp alone can be formed into paper with the addition of a small proportion of clay, but it is customary to strengthen the sheet by incorporating with the groundwood pulp a definite proportion—10 to 20 per cent—of chemical pulp made by the sulfite process. The preferred wood for the manufacture of sulfite pulp, which is made by boiling the wood under pressure, in bisulfite of lime solution, is spruce, though other woods, as hemlock, balsam fir, white fir and tamarack, are also used commercially.

The spruce and fir forests of the northeastern states, where our pulp and paper industry has had its greatest development, have been practically exhausted, and American paper manufacturers have been forced to seek supplies of this raw material in Canada. The Canadian pulp and paper industry has forged ahead of late years until its production of pulp and paper has reached enormous proportions, putting pulp and paper manufacture at the head of all the Canadian industries.

In addition to the pulp manufactured in our own mills for conversion into paper, a large volume is now imported from Scandinavia and Germany, as well as from Canada, our home production being wholly inadequate to meet the demands for the many kinds of paper which are manufactured in addition to newsprint paper.

Coincindentally with a diminising supply of the woods which form the basis of newsprint paper, there has been more than a normal increase of consumption of this class of paper, owing to a greater use of newspaper advertising on the part of merchants and manufacturers.

Although there has been a good deal of ill-informed speculation concerning possible new sources of paper making material, and many futile attempts have been made to utilize various reeds and grasses, waste paper, etc., the experiments of Brand, under the auspices of the United States Department of Agriculture in 1910, demonstrated the feasibility of converting cereal straws into a satisfactory paper pulp and commercial applications of the process or processes similar to it have already been made.

It is inevitable that paper manufacturers will turn eventually to sources of pulp other than timber, though for numerous kinds of paper, trees will remain the preferred material. The use of cotton linters is a new and promising devolopment. In the pulp and paper laboratories of the Forest Service at Madison, Wis., it has been proved experimentally that many western woods heretofore unused are well adapted for conversion into paper pulp by the processes ordinarily employed. Spruce can be replaced for pulp manufacture by twenty or more different woods, but the fact that it and trees similar to it take thirty-five or forty years to reach maturity is still a hindrance to their constant use. Timber trees cannot be treated as the agriculturist treats crop plants and be sown, cut and grown again as annual harvests, though some of the larger paper manufacturers have undertaken forestry work looking to the reproduction of wood on cut-over areas. The West Virginia Pulp and Paper Company, in this country, and the Laurentide Company, in Canada, were pioneers in conducting operations for timber conservation and insuring future supplies of papermaking woods.

The solution of the problem is however, to be looked for in another direction. For years there has been used in the manufacture of tough papers, bag and wrapping papers, a fiber called Manila hemp, which is no hemp at all but a species of banana, belonging to the Scitamineae family, the genus being Musa. Manila hemp is known to botanists as *Musa textilis,* while the edible banana of commerce is *Musa sapientum.* The leaf stalks of the various species of banana are rich in cellulose membranes which give them first place as available sources of paper stock, and it might be a profitable undertaking to plant the waste areas of the subtropical regions of our country, lower Florida and California, with the wild banana or other fiber yielding plants not heretofore employed as raw material for paper making. They could be treated as annual crops to yield a steady supply.

An American company has been formed for the utilization of fiber extracted from the wild banana by a new method involving the use of a fiber-decorticating machine which separates the fibers mechanically, and leaves them clean of incrusting material and ready for cooking in the pulp mill. The promoters of the enterprise are confident of developing within a few years a tropical industry capable of furnishing pulp and paper mills in the United States with a plentiful supply of papermaking material. Operations are now being conducted on a commercial scale in the Republic of Panama, near the Canal Zone.

Athough reeds and grasses as raw materials for papermaking are of little importance at the present time, it may be said in favour of their use that the harvest is large and the plants are less subject to decay and rot in keeping than, for example, bamboo, banana and similar solid stalks which allow no ventilation in piling. Reeds and grasses are characterized by hollow cylinders which permit the passage of air and so obviate the decay resulting from the breaking down of vegetable matter which is more solidly massed in the bamboo and other plants named.

In reeds and grasses the cellulose membranes are less permeated with lignin and a smaller quantity of alkali is consequently required for their reduction to paper pulp than is the case with woods or plants of solider stems. In Germany, Czechoslovakia, and Roumania, the stalk sheaths and leaves of Phragmites and Typha have been used for the preparation of cellulose with satisfactory results. The root stock of Phragmites is made to yield alcohol before being pulped.

The reeds used in this country for the manufacture of floor mats, etc , might prove a good source of paper pulp, and the waste from mat factories might also be experimented with. The dried plants are best adapted for use, since the green material contains coloring matter which makes bleaching difficult and expensive Before harvesting the plant it should be allowed to stand from the actual time of ripening until winter sets in. This permits a more thorough drying and the mechanical action of air and cold favors the rupturing and weathering of all the cell constituents. The stalk and sheaths of the plants are considered the most suitable materials for pulp on account of their higher yield of cellulose fibers, amounting to between 30 and 35 per cent.

The cells of which the fibers of reeds and grasses are composed are short, rather wide in proportion to their length, and thin-walled. While these characteristics render the fibers unsuitable for conversion into the finer grades of bond and writing papers, they facilitate and cheapen the production of the pulp for purposses for which it is suitable.

It is not an idle dream to look forward to a time when pulp and paper manufacturers will have abandoned their present methods of obtaining cellulose fibers and treat paper pulp as a by-product of manufacture rather than a main product From the tree or plant a whole range of valuable organic derivatives might be first extracted, leaving the cellulose, cell walls or skeleton of the plant to be utilized last of all. It is the tendency of modern methods of manufacture to proceed in this way, but it must be confessed that it is a far glance into the future where the paper industry is concerned.

As has been pointed out by Steinmetz, it is not so long since the coal tar produced in coke ovens was thrown away as a uselese waste material. In the manufacture of sulfite pulp, the waste liquor of the cooking process is regarded similarly and the great bulk of it is washed into rivers and water courses to their pollution, only a small quantity of the available material being utilized as roadbinders, or for cementing foundry cores and still less as a source of alcohol after fermenting the sugars contained in it. May it not be, that like the former waste product, coal tar, sulfite waste liquor may yet be made to yield many valuable organic chemical substances and evolve a new and profitable industry ?

Extracted from 'The Scientific American' for June 11, 1921.

List of Books received for the Madras Forest College Library from 15-6-21 to 22-8-21.

A. General Library :

1. List of Forest officers in Madras corrected upto 1—7—05.
2. Do. do. do. 1—4—08.
3. Report of public instruction in the Madras Presidency for 1919—20. (2 Volumes)
4. Report on Forest Administration in the Andamans for 1918—19.
5. Report on Forest Administration in Central Provinces for 1918—19.

6. Quinquennial Review of Forest Administration in British India for 1914—15 to 1918—19.

7. Progress reports of the Forest Administration of (1) N. W. Frontier Province and (2) The Punjab, and (3) Ajmere, for 1919—20.

8. "Road construction and maintenance"—*By Paul.*

9. "W. P. of 1914 for the Haldwani Forest Division, U. P. and Agra and Oudh."—By T. V. Collier,

10. "The Kiln drying of Jarrah"

11. Note on~~e~~ Pyinma, Aghar or Jaral wood and Lagerstroemia Flos Reginae.—By Pearson I. F. S. F. L. S.

12. "Some Madras Trees"—By ~~a~~A. Butterworth.

13. 'Forestry in British India'—By Ribontrop.

14. 'Forest Products; their manufacture and use'—By W. C. Brown.

15. Report on Forest Management in Germany, Austria, and Gt. Britain.—By C.C. Walker.

16. Supplemental Reports on Forest Management in France, Switzerland and Lower Austria.

17- Fauna of Chilka Lake No. 7. Oct. 1920.

18. Do. do. No. 8. May 1921.

19. Note on weights of Seeds—By, S. H. Howard.

20. Indian Forest Records—Vol VII. Part 7.

21. Summary of the Report by Mr. F. A. Leete, Conservator of Forests on his visit to Canada The United States and England.

22 "British Empire Forestry conference, London 1920, Statement of Forest condition in British India."

23. Note on a tour of Inspection on some of the Forests of the Kashmir state—By Sir George Hart.

24. Administration report of Forest Department, H. E. H. the Nizam's Dominions—By F, A. Lodge Esq., for E. 1328.

B. Students' Library.

1. "Arabian Nights"—By A. R. Times.

2- "New India"—By Chandavarkar.

Occasional Notes.

Senior student, S. C. Ramalingam, is appointed Secretary of the Athletic Club and Secretary of the Athletic Sports. Senior Student, Bandari is appointed Captain of Foot ball. Senior Student, Narayana Rao, is appointed Captain of Cricket.

Students S. C Ramalingam and J. K Bodas are awarded colours for Cricket.

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REVIEWS.

(*a*) *"The practice of Silviculture"—by Ralph. C. Hawley,* Professor of Forestry, Yale University.

Among the latest additions to the literature in Forestry is " The Practice of Silviculture " by Prof. Ralph C. Hawley of Yale university U. S. A. The book should prove of great help to those engaged in the teaching of Silvics. The different methods of scientific treatment applied to Forests have been dealt with in a very concise manner, and the chapter on *thinnings* shows in detail the various methods practised in European forests. A summary of the several injuries done to forests with measures of protection is also given at the end of the book. The book will be of much assistance in the field if notes on artificial reproduction are also added.

(b) *"Studies in French Forestry"—by Theodore S. Woolsey* Jr, with two chapters by *William B. Greeley*.

This volume affords interesting reading of Forestry as practised in France. The chapter dealing with erosion is very instructive, The insertion of the photos makes the book attractive.

M. R. Sundram Ayyar.
Instructor in Sylviculture.
Madras forest College,
Coimbatore.

Contributions to the Gass Forest Museum.

Serial No.	Contribution.	Contributor.
1.	Sample of '*Vallum*' pebble from the Tanjore District.	J. Shortt Evers Esq. D. M. S, O.
2.	Balk of *Bucklandia populnea Br.* and 3 bark samples.	M. R. Ry. C. Sankunni B. A., R. O. Coonoor
3.	Leaves and Fruits of the Para Rubber tree.	F. R. Vincent Esq. Kutikul Estate Mundakayam.
4.	One short panel and one block of *Xylia dolabriformis.*	F.A. Seager Esq. I. F. S D.F.O. L. Godaveri.

5.	One box of English Butterflies.	H.A. Latham Esq. I.F.S Conservator of Forests. IV circle.
6.	One large, and five small, "Queen White-ants"	Mr. R. B Salisbury Instructor V. T S. IV. circle.
7.	Three sections of burrs of *Pterocarpus marsupium*	H F.A. Wood Esq I F S Conservator of Forests V. circle.

Students' Club Fund.

Statement showing amounts promised and still due by old students, towards the Students' club:—

		Rs.	A.	P
Mr.	C. S. Ramanathan	10	14	0
,,	M. R. Doraiswami	3	0	0
,,	Kerala Varma	10	0	0
,,	Gulam Dustagir	9	0	0
,,	S. A. Dawson	11	0	0
,,	N. T. Tambi	4	0	0
,,	P. Karunakara Menon	9	0	0
,,	Dhananjeya Rao	13	0	0
,,	Kesava Pillai	12	0	0
,,	I. Ramalingam	8	0	0
,,	L. A. Krishna Ayyar	7	0	0

,,	S. Krishna Ayyangar	15	0	0
,,	T K. Parameswaram Pillai	15	0	0
,,	P. Krishnan	10	0	0
,,	T. E. Varadhachari	15	0	0
,,	K. G. Sundararaja Rao	10	0	0
,,	M Krishna Ayyar	10	0	0
,,	S. V. Sigbhatullahi	10	0	0
,,	Gulam Rassool	10	0	0
,,	T. R. Naganatham	10	0	0
,	W. Balakrishna Mudaliar	10	0	0
,,	Aiyappa Asari	15	0	0
,,	D. Patel	18	0	0
,,	K. Jayaraman	12		0
,,	P. V. Ramanna Rao	12	0	0
,,	R E. Lemos	50	0	0

Gazette Notifications

7TH JUNE 1921.

M. R. Ry. Rao Sahib K. R. Venkataramana Ayyar Avergal, Forest Research officer, Coimbatore, is granted extension of privilege leave by 24 days in continuation of the leave already granted;

21ST JUNE, 1921.

M. R. Ry. S Venkataramana Ayyer Avergal Assistant Engineer, Public works Department to act as Forest Engineer, Vice Mr. F. J. Marshall.

28TH JUNE, 1921.

(1) M. R. Ry. A. Hanumantha Rao Avergal D. F, O. west Cuddapah, is granted privilege leave for 4 months from date of relief.

(2) M. R. Ry A. R Narasimha Ayyangar Avergal. D. F. O, North Mangalore, is granted privilege leave for 3 months from date of relief.

(3) Mr. J. A. Master, D.F.O. South Cuddapah, is to be in charge of west Cuddapah division in addition to his own, during the absence of M. R. Ry. A. Hanumantha Rao Avergal on Leave.

5TH JULY, 1921

(1) Mr. J. H Longrigg Deputy Conservator of Forests, and Senior Instructor, Madras Forest College, is granted combined privilage leave and furlough for 1 year and 3 months from or after 1st July 1921.

(2) Mr. B. K. Boy Assistant Conservator of Forests is granted privilege leave for 14 days with effect from the 12th June 1921, and furlough for 4 days in continuation thereof.

(3) Mr G. S, Lasrado D. F. O. South Mangalore, is to hold charge of the North Mangalore Division in addition to his own during the absence of M. R. Ry. A. R. Narasimha Ayyangar Avergal on leave.

(4) Mr. G. C. Robinson, Deputy Conservator of forests, on return from leave is posted to be Senior Instructor Madras Forest College, Coimbatore, Vice Mr. J. H. Longrigg granted leave.

(5) Mr. Charles Mahony is confirmed as Extra Assistant conservator of Forests with effect from the 18th March, 1919.

12TH JULY 1921.

(1) Mr. A. B. Jackson, Conservator of Forests, is granted an extension of furlough on average salary for 2 months in continuation of the leave already granted th him.

(2) Mr. C. E. C. Fischer, Acting Conservator of Forests, III Circle, to continue to be in additional charge of II Circle during the absence of Mr. Jackson on leave.

(3) Messrs. A. R. Brand and P. W. F. Walpole are confirmed as Extra Assistant Conservators of Forests.

The undermentioned officers of the Public Works Department are oppointed to discharge the functions of Forest Officers under Section 52 (d) of the Madras Act, in respect of Forest Offence in the areas mentioned against each of them.

(1) Executive Engineer Trichinopoly Dn.	Kuruvadi Forest in the Udayarpalayam Taluk, Trichinopoly Dt.
(2) Executive Engineer Cauvery Dn.	Sattambadi Forest in the same area.

19TH JULY, 1921.

M. R. Ry. B. S. Kesava Vittal Avergal. E. A. C. of Forests, is granted privilege leave for 6 weeks from date relief.

2ND AUGUST, 1921.

Mr. B. K. Roy E. A. C. of Forests is granted an extension of furlough for 2 days in continuation of the leave granted to him.

9TH AUGUST 1921.

(1) M. R. Ry. E. V. Padmanabha Pillai Avl. D. F. O. Central Coimbatore Dn. is granted combined privilege leave and furlough for one year from date of relief.

(2) Mr. F. L. C. Cowley-Brown, Dy. Conservator of Forests has been granted by the Secretary of state an extension of furlough on Medical Certificate for six months from 25—8—21.

(3) Saiyid Abdul Qadir Sahib Bahadur, D. F. O. West Vellore, to be also Deputy Collector in the North Arcot Dt.

(4) Mr. R. E. Lemos, Ranger II grade, is appointed as Temporary E. A C. and is posted to special duty in connection with the development of the Ambasamudram Range forests of the Tinnevelly Dt.

(5) Mr. W. C. Hart, Forest Research Officer, on relief, to be Instructor Madras Forest College, Coimbatore, until further orders.

(6) Mr. R B. Cornwell, Instructor, Madras Forest College, on relief, to be D. F. O. Central Coimbatore, until further orders, *vice* M. R. Ry. E. V. Padmanaba Pillai Avl. granted leave.

(7) M. R. Ry. P. Govinda Menon Avl., E. A. C. to be D. F. O. Central Coimbatore; until relief by Mr. R. B. Cornwell.

(8) Mohammed Abdul Karim Sahib Bahadur, Instructor, Madras Forest College, Coimbatore, to be D. F. O. North Vellore until further orders.

(9) M. R. Ry., E. K. Krishnan Avl., D. F. O. North Vellore, on relief to be Instructor, Forest College, Coimbatore, until further orders.

(10) Messrs. V. J. Van Haeften and C, M. Kushalappa Extra Asst Conservators of forests on probation, are confirmed with effect from 26th March 1921.

16TH AUGUST 1921.

Messrs. M. R. Sundaram Iyer, and P. W. F. Walpole are confirmed as Extra Assistant Conservators of forests with effect from 10th July 1917.

Notifications relating to Range officers :—

(*a*) FIRST CIRCLE :—

1. (13—6—21) On expiry of the Vernacular Training School course M. R. Ry. T. E, Varadachari, Ranger IV grade, *sub protem,* is posted to Ganjam District for duty.

2. (24—6—21) The privilege leave for 6 weeks and 15 days granted to M. Subba Rao Ranger VI grade is extended by 9 days.

(*b*) SECOND CIRCLE.

3. (31—5—21) The following arrangements are made to fill up vacancies in the Rangers' cadre :—

No.	Name of officer.	Present scale.	Grade to which promoted.	Remarks
10.	P. Chengal Reddi.	VI grade *Sub protem*	VI grade permanent	—
13.	Abdul Rahim Khan Sahib.	Supernumerary Ranger.	VI grade *Sub protem.*	Vice No. 10.

4. (1) (1—6—21) Ranger, B. K. Krishna Rao, III. Grade, on return from leave (expiring on 14—6—21) in posted to Gundlakamma Range South Kurnool.

(2) Ranger P. V. Krishna Rao Naidu on relief by No. 1 to do duty under the orders of the District Forest Officer, South Kurnool.

(3) Ranger, B. V. Jogeswara Rao, V. Grade on return from leave (expiring on 10—6—21) is posted to Kalyandrug Range, Anantapur District.

(4) Ranger Abdul Rahim Khan Sahib in charge of Kalayandrug Range on relief by No. 2 to work under the orders of the District Forest Officer, Anantapur.

5. (7—6—21) M. R. Ry., O. Venkataramana Iyer, Ranger in charge of Bapatla Range, Guntur District to Gooty Range of Anantapur District on relief.

6. (7—6—21) N. E. Kanakiah Naidu. Ranger in charge of Gooty Range Anantapur District, to be on special duty on relief in the same district

7. (1) (13—6—21) M. R. Ry., B. Krishna Rao, Ranger III grade, on return from leave is posted to Harpanahalli Range of Ballary Dt.

(2) M. R. Ry., G. Rama Rao, IV Grade, Harpanahalli Range is posted to Gundlakamma Range, Kurnool South Division. To join on relief of by No. (I)

8. (13—6—21) M. R. Ry., S. Varadarajulu Reddi, Forester, I Grade, and acting Ranger VII. Grade on special duty in Kurnool West Division is granted privilege leave for five weeks.

9. (30—6—21) M. R. Ry. N. E. Kanakayya Ranger, Gooty Range, Anantapur District, promoted to IV. grade permanent, with effect from 1—5—21.

10. (30—6—21) M. R. Ry. K. Thiruvenkata Chary Ranger, Nandyal Range, Kurnool District, promoted to V grade permanent, with effect from 1—5—21.

11. The Ag. Conservator of Forests, II Circle, is pleased to sanction furlough on Medical certificate to Ranger B. V. Jogeswara Rao from 10—6—21 till the date of his joining duty in Kalyandrug Range, provided he joins duty at once.

12. The following reversions of Ag. Rangers are ordered to take effect from the 1st July 1921.

(1) Abdul Gallack Sherif acting in the Dornal Range, Kurnool East to his permanent post Forester I grade.

(2) S. Varada Rajulu Reddi on special duty in Gundlabrahmeswaram Range (Kurnool West) to his permanent post as I grade Forester.

(3) N. Narasinga Rao, in charge of Pecheruvu Range Kurnool West to his permanent post as I Grade Forester,

13. The following transfers of Rangers are ordered :—

(1) Ranger M. R. Ry., C. Ramaswamy Naidu from Gundlabrahmeswaram Range, Kurnool West to Palnad Guntur Dt. To join without unnecessary joining time.

(2) Ranger, M. R. Ry. N. E Kanakieh from Anantapur Dt. to Gundlabradmeswaram Range, Kurnool West.

14. (1) Ranger M. A. Ghatala Sahib, Sattenapalli Range, is granted leave on loss of pay for 1 year from date of relief.

(2) Ranger B. N, Subramania Iyer on special duty is posted to Sattenapalli Range, Vice No, (1) to join at once.

15. (13—8—21) M. R. Ry. N. C. Mahadeva Ayyar, Range Officer is transferred to V Circle. He should report himself to Mr. R. E, Lemos Ag. Extra Assistant Conservator of Forests, at Ambasamudram, Tinnevelly District.

(c) THIRD CIRCLE :—

16. (3—6—21) M. R. Ry., T. S. Narayanaswami Chetti Ranger VII. (now on leave) is granted an extension of leave without allowance for 1 month from 21st May 1921 to 20th June 1921 on Medical Certificate.

17. (1) (6—6—21) M. R. Ry., K. R. Visvanatha Ayyar Ranger IV grade on return from the combined leave is posted to the charge of Chittoor Range Chittoor Dt. for 15 days in relief of M. R. Ry., L. Govindaswami Pillai Ranger VI grade and them for special duty under the orders of the District Forest Officer Chittoor.

(2) M. R. Ry., L. Govindaswami Pillai Ranger VI. grade in charge of Chittoor Range, Chittoor District on relief by No. (1) is granted privilege leave for 15 days.

(3) M. R. Ry., K R. Krishna Ayyar Ranger IV grade on return from privilege leave for 5 months granted in this office S. O. No. 131/20 dated 26—11—20 is posted to the charge of Udayagiri Range Nellore District in relief of M. R. Ry, A. Siddhan Pillai Ranger IV grade.

(4) M. R. Ry., A. Siddhan Pillai Ranger IV grade in charge of Udayagiri Range, Nellore District on relief by No. 3 or date of relief is granted combined privilege leave and furlough for one year

18. (1) (8—6—21) M. R. Ry., P. S. Varadakrishnamachary Ranger V. grade on return from the three months privilege leave with effect from 1—5—21 granted in this office S. O. No. 45 of 21 dated 21—4—21 is posted to the charge of Badvel Range, North Cuddapah Dt.

(2) M. R. Ry. V. P Narayana Menon Ranger IV grade in charge of Badvel Range North Cuddapah division od relief by No. (1) is granted privilege leave for 4 months.

19. (1) M. R. Ry. D. Venkateswarulu Ranger VI grade in charge of Mamundur Range Chittoor Dt. on relief posted to the charge of Chamala Range Chittoor Dt.

(2) Mr. E. W. Fernandez Ranger V. grade in charge of chamala Range Chittoor Dt. on relief is posted to work under orders of the District Forest Officer Chittoor until further orders.

(3) M. R. Ry , L Govindaswami Pillai Ranger VI. grade in charge of Chittoor Range Chittoor Dt. on return from the 15 days privilege leave granted to him is posted to the charge of Sriperumbudur Range, Chingleput Dt.

(4) Mr. Henry MacBride Ranger IV grade in charge of Sriperumbudur Range Chingleput Dt. on relief is posted to the charge of Chittoor Range Chittoor Dt. in relief of M. R. Ry. K. R. Visvanatha Ayyar Ranger IV grade temporary posted to the charge of Chittoor Range, Chittoor Dt.

20. (24—6—21) M. R. Ry., K. R Krishna Ayyar, Ranger IV grade who was transferred to Udayagiri Range Nellore Dt. is granted an extension of privilege leave for 1 month in continuation of 5 months' leave already granted to him.

(1—7—21) M. R. Ry., T. S. Narayanaswami Chetti Ranger VII. grade is granted an extension of leave without allowances for 2 Months in continuation of the leave already granted to him.

22. (2—7—21) M. R Ry., A. Siddhan Pillai Ranger IV in charge of Udayagiri Range Nellore Dt. is granted combired leave and furlough for 4 months from date of relief.

23. (2—7—21) The following promotions of Rangers are ordered with effect from 1—3—21 consequent on the restoration of Ranger M. R. Ry. R. Guruswamy Ayyar from III to the I grade on appeal and the appointment of M. R. Ry. C. M. Belliappa Avergal Ranger I grade as E. A. C on probation :—

(1) Mr. A. Ranganayakulu Ranger III. grade and Ranger II *sub protem* to be Ranger III.

(2) Mr. A. Ranganayakulu Ranger III. to be Ranger II Sub-protem.

24. (1) (5—7—21) M. R. Ry., T. N, Seshagiri Rao Ranger I grade on return from the 2 months privilege leave granted to him with effect from 18—4—21 is posted to the charge of Chinglpet Range Chinglput Dt.

(2) M. R Ry. S. Vasudeva Reddy Ranger I grade in charge of Chingleput range on relief by No. 1 is posted to the charge of Chitvel Range South Cuddapah Dt. in relief of M. R. Ry. T. Paramesivam Pillai Ranger V grade granted leave in this office S. O. No. 54 dated 15—5—21.

(3) Mr. S. M. Razvi Saheb Ranger IV. grade on return from the 2 months, combined leave with effect from 29—5—21 is posted to the charge of Sathiavedu Range Chingleput Dt.

25. (15—6—21) (1) M. R. Ry. B. V. Vaideeswara Ayyar Ranger V grade in charge of Sathiavedu Range Chingleput (on relief by Mr Razvi Sahib posted to Sathiavedu) is posted to the charge of Sreeperumbudur Range of the same district as a temporary measure.

(2) Mr. Henry MacBride Ranger IV grade in charge of Sriperumbudur Range Chingleput Dt. on relief by No. 1 to proceed at once

to the charge of Chittoor Range Chittoor Dt. as already ordered in relief of Ranger L. Covindaswami Pillai granted privilege leave for 15 days.

(3) M. R. Ry. L. Govindaswamy Pillai Ranger VI grade on return from leave is posted to Sriperumbudur Range Chingleput Dt. as already ordered.

(4) The posting of M. R. Ry. K. R Viswanatha Ayyar Ranger VI grade to the charge of Chittoor Range Chittoor District as a temporary measure is cancelled and he is posted to relieve M. R. Ry. M. P. Halasyanatha Ayyar Ag. Ranger VII grade at Vayalpad Chittoor Dt

(5) M. R. Ry. M. P. Halasyanatha Ayyar Ag. Ranger VII grade on relief by No. 4 to work under the orders of the District Forest Officer Chittoor.

26. (14—7—21) M. R. Ry. S. Vasudeva Reddy Ranger I grade in charge of Chingleput Range Chingleput District on relief by M. R. Ry T N. Seshagiri Row is posted to work under the orders of the District Forest Officer Nellore and eventually to take charge of Nellore Range. (This cancels the posting of tho Ranger to Chitvel Range South Cuddapah Dt.)

27. (14—7—21) M. R Ry. P. Chengal Reddi Rager VI grade on special duty under the orders of the District Forest Officer South Cuddapah District is posted to the charge of Chitvel Range South Cuddapah District in relief of M. R. Ry. T. Paramasivam Pillai Ranger V granted leave.

28. (15—7—21) M. R. Ry. C. R. Rajagopalan Ranger VI grade West Cuddapah District is granted privilege leave for 35 days with effect from 12th June 1921 the date of relief by Mr, J. M. Abraham Vempelli Range.

29, (21—7—21) Mr. E. W. Fernandez Ranger V grade in charge of Chamala Range Chittoor Dt. is granted privilege leave for 4 months with effect from date of relief (21—7—21).

30. (26—7—21) Mr. T. T. Ansep Ranger IV grade Senior Instructor Vernacular Training School North Cuddapah District on relief of his duties as such is granted privilege leave for two months.

31. (26—7—21) The three months privilege leave granted to M. R. Ry, P. S. Varadakrishnamachari, Ranger V grade in Nellore Dt. is extended by one month with effect from (1—8—21).

32. (26—7—21) The one month's privilege leave granted to M. R. Ry. B. Chenchurama Nayudu Ranger IV grade Nellore Dt. is extended by 15 days with effect from 14th July 1921.

33. (7—8—21) Mr. S. M. Razvi Ranger IV grade North Cuddapah Dt. is granted an extension of furlough for 2 months on average salary in continuation of the combined leave granted to him.

34. (7—8- 21) (1) Mr. T. T. Ansep Ranger IV grade on return from the privilege leave granted to him is posted to the charge of Rajampet Range South Cuddapah Dt.

(2) M. R. Ry., A. Ranganayakulu Nayudu Ranger II grade in charge of Rajampet Range South Cuddapah Dt. on relief by No. (1) is granted privilege leave for 3 months.

35. (7—8—21) The following reversions are ordered :—

(1) M. R. Ry. M. P. Halasyanatha Ayyar Ag. Ranger VII grade on special duty Chittoor Dt. is reverted to his permanent appointment as Forester I with effect from 1—8—21 and ordered to work under orders of the District Forest Officer Chittoor until further orders.

(2) M. R. Ry. B. H. Anandathirtha Rao Ag. Temporary Ranger VII grade doing duty as Junior Instructor of Vernacular Training

School North Cuddapah Dt. is reverted to his permanent appointment with effect from 1—8—21 and is posted for duty under the orders of th District Forest Officer North Cuddapah Dt.

36. (8—8—21) Mr. T. T, Ansep Ranger IV grade Senior Instructor Vernacular Training School North Cuddapah Dt. on relief of his duties as such is granted privilege leave for 1 month instead of two months granted to him.

37. (8—8—21) The following postings are ordered :—

M. R. Ry , T. S. Narayanaswami Chetty Ranger VII grade on return from the combined leave on 20—8—21 is posted to the charge of Sreeperumbudur Range Chingleput Dt. in relief of Mr. H. MacBride. posted to Chittoor Dt. This cancells the posting of Ranger B. V Vaideeswara Ayyar to Sreeperumbudur Range Chingleput Dt,

38. (12—8—21) M. R. Ry. C. R. Rajagapalan Ranger VI West Cuddapah Dt. is granted an extension of privilege leave for 1½ months in continuation of the leave already granted to him.

39. (11—8—21) M, R. Ry., S. Chinnadurai Pillai Ranger II grade in charge of Madanapalli Range Chittoor Dt. is transferred to V Circle to work under the orders of Mr. R. E, Lemos Extra Asst. Conservator of Forests posted for the development of the Ambasamudram Forests Tinnevelly Dt. He should on relief report himself before Mr. Lemos at Ambasamudram.

40, M. R. Ry. K. R. Viswanatha Ayyar Ranger IV grade on special duty Chittoor Dt. is posted to the charge of Madanapalle Range Chittoor Dt. in addition to his special charge of Vayalpad Sub Range of the same District.

(*d*) FOURTH CIRCLE :—

41. 2—6—21. Supernumerary Ranger S. Nagalingam Pillai is granted privilege leave on medical certificate for 3 months from 6—4—21

42. 7—6—1921. M. R. Ry. R. Thangavelu Pillai, Supernumerary Ranger in charge of Gingee Range, South Vellore is permitted to draw a Cycle allowance at Rs. 5. per mensem from 14-5-1921

43. 7—6—1911. M. R. Ry. K. Jayaraman, Ranger VI grade is posted to South Vellore Division.

44. 8—6—1921. M. R. Ry. P. A. Krishnaswami Mudaliar, Ranger V. grade will on return from leave resume his investigation duty at Denkanikota.

45. 18—6—1921 (1) M. R. Ry., K. L. Muniswami Ayyar, Ranger I grade Sub-protem is on return from leave posted to Salem Range, Central Salem Division.

(2) M. R. Ry., C. D. Parthasarathi Chetti, Ranger IV. grade is on relief by No. 1, transferred from Central Salem to East Salem Division for protection duty.

(3) M. R. Ry., S. Ramanujam Sesha, Ranger VI. grade is on return from leave transferred from South Vellore Division to the Central Salem Division.

* * * *

46 5—7—1921. (1) M. R. Ry., P. A. Krishnaswami Mudaliar Ranger V grade is granted an extension of sick leave for two months in continuation of the leave granted to him.

* * * *

(2) M. R. Ry. V. Narayanaswani Ayyar, Ranger V. grade on relief by No. 1, is posted temporarily for Spike Investigation Duty, Denkanikota Range until Ranger M. R. Ry. P. A. Krishnaswami Mudaliar returns to duty.

47. 7—7—1921. M. R. Ry. K Jayarama Ayyar, Ranger V. grade is permitted to draw a Cycle allowance at Rs. 5/- per mensem from 24—12—1920 to 11—4—1921 during which he held charge of Thammampatti range.

48. 9—7—1921. M. R Ry., Doraiswami Ayyar, Ranger VI grade is on return from leave transferred from North Salem to South Vellore Division for the charge of Gingee Range.

49 16—7—1921. M, R Ry. K. Jayarama Ayyar, Ranger VI grade is transferred from West Vellore to South Vellore Division.

50. 20—7—21. The action of the District Forest officer, East Salem, is posting M. R. Ry., C. Rajagopal Nayudu, Ranger II. grade who joined duty on the expiry of his leave on 14—7—1921 to the charge of Atur Range, Vice Ranger T. V. Govinda Rao proceeding on leave on medical certificate, is approved.

51 20—7—1921. M R. Ry. T. V. Govinda Rao, Ranger V. grade, is granted privilege leave on medical certificate for two months from date of relief.

52. 26—7—1921. The five months, combined leave (privilege leave for 4 months and 1 months's furlough on medical certificate) form 12—2—1921 granted to M. R. Ry., S. Ramanujam Sesha, Ranger VI grade, is extended by 1 month.

53. 29—7—1921. M. R, Ry., M. Muthuswami Ayyar, Ranger II grade will on return from leave report himself to the District Forest officer, Central Salem Division.

54. 29—7—21. The five months' combined leave granted to M. R. Ry. P. A, Krishnaswamy Mudaliar Ranger V grade, is commuted into:—

(1) Privilege leave for 2 months and 25 days and

(2) Furlough on average salary for 2 months and five days

55. 3—1—1921. M. R. Ry. T. Kesavelu Naidu, Acting Ranger VII. Grade and Assistant Instructor, Vernacular Training School will be considered to have acted as Instructor, Vernacular Training School from 7—2—1921 to 20—2—1921.

56 10—8—1921. M. R. Ry. S. Ramanujam Sesha, Ranger VI. grade is on return from leave on 12—8—1921 posted to Central Salem Division.

57. 10—8—1921, (1) M. R. Ry., V D. Ramalingam, Ranger VI grade is placed under suspension pending disposal of charges against him.

(2) M. R. Ry. C. Rajagopal Naidu, Ranger II. grade in charge of Atur Range, East Salem Division, is transferred to the charge of Harur Range to join forthwith on relief No. 3.

(3) M. R. Ry. V. Narayanaswami Ayyar, Ranger on spike duty, is on relief by Ranger M. R. Ry. P. A. Krishnaswamy Mudaliar, posted to the charge of Atur Range, East Salem Division. He should join forthwith.

57 (a) 18—8—1921. On return from leave, M. R. Ry. M. Muthusami Ayyar, Ranger II. grade is posted to Cauvery Range, *vice*, M. R. Ry. G. N. Subba Rao, whose services have been dispensed with.

FIFTH CIRCLE.

58. 2—9—21. Mr. A. Culas, Range officer, Kollegal, is considered to have been on privilege leave from 4th to 21st May (both days inclusive.)

59 14—6—21 Ranger M R Ry. Easwara Ayyer who was posted to South Coimbatore for special labour duty is reposted to North Coimbatore as his services regarding Labour are no longer required.

60. M. R. Ry. M. Sankaran Nair, Ranger VI. grade, *sub protem,* Kollega Division is granted Combined leave for 3 montht and 11 days privilege leave for 3 months and furlough on medical certificate fol 11 days—from 21st March 1921.

61. 23—6—21. The postings of the following students who are coming out of the Forest college after the completion of their course are ordered :—

Name.	*District to which posted.*
M. P. Philip ...	... Tinnevelly,
A. R. Manual ...	... South Coimbatore.
P. Sankunni Naiyar	... Madura.

62. 24—6—21. The following postings-are ordered :—

(1) M. R. Ry. R. Gurusami Ayyar. Ranger I grade after the closing of the V. T. School 1921 session is posted to charge of Mettupalayam Range, North Coimbatore District.

(2) M. R. Ry. K. Kunhiraman Meon, Ranger VII. grade, after the closing of the V. T. School is posted to work under Madura District Forest officer.

(3) Mr. B. R. Salisbury, Ranger II grade after the closing of the V. T School 1921 session IV circle, is posted to charge of cumbam Range Madura Distriit.

(4) M. R. Ry. S. Chidambera Ayyar, Ranger IV. grade on relief by No. 1. is posted to South Coimbatore Distriet to work under the orders of the District Forest officer.

(5) M, R. Ry. A, N. Ponniah, Ranger VI on relief by Nc. 3 will work under the District Forest officer's orders.

63. 29—6—21 M. R Ry. R- Gurusami Ayyar, Ranger I. grade after the closing of the Vernacular Training School in North Coimbatore Division, is posted to South Coimbatore District.

This cancels his posting to charge of Mettupalayam Range and the transfer of M. R. Ry, S. Chidambara Ayyar, Ranger, IV. grade from Mettupalayam Range charge to South Coimbatore Division to work under the orders of the District Forest officer.

64. 1—7—21. The following reversions and promotions are ordered with effect from 1—5—1621 consequent on the restoration from the III. grade to the 1st grade of Ranger M, R. Ry. R. Gurusami Ayyar, and the appointment of M. R Ry. C. M. Belliappa, Ranger 1st grade as Extra Assistant conservator on probation.

(1) Mr. L. J. Taylor, Ranger II. grade subprotem to revert to III grade (permanent) (Tinnevelly)

(2) M. R. Ry. P. Velayutham Nair, I grade *Sub protem* to revest to II grade permanent.

65. The following reversions and promotions are ordered with effect from 1—5—1921, consequent on the restoration of Ranger M. R. Ry. R. Guruswami Ayyar, from ihe III. grade to I. grade on appeal, and the confirmation of M. R. Ry. V. Narayana Ayyar, Ranger II. grade as Extra Assistant conservator of Forests.

To III gradepermanent *with effect from* 1—5—1921.

Mr. A. Antony culas.

66. (9—7—21) Ranger Mr. B R. Salisbury on relief from the Vernacular Training School is appointed to be Range Officer Kodamady in Tinnevelly District.

This order cancels his appointment to Madura.

67. (16—7—21) The privilege leave for one month granted to M. R. Ry. A. Krishnamachari, Ranger III grade Tinnevelly is extended by another month.

68. (16—7—21) M. R. Ry. A. Krishnamachari Ranger III grade Tinnavelly is transferred, on return from privilege leave, to North Coimbatore to be in charge of Talamalai Range.

(2) Mr. A B. Fenn, Ranger VI grade in charge of Talamalai Range is transferred on relief by No. (1) to Tinnevelly where he will receive orders from the District Forest Officer to whom he should report himself.

69. The privilege leave for 2 months granted to M R Ry. G. M. Krishnaswamy Ayyar Ranger IV grade in this office S. O. No. 58 of 21 dated 2nd May 1921 is extended by 1 month.

70. (9—8—21) The period of absence of M. R. Ry. M. Sankaran Nair, Ranger, Kollegal, from 21st March 1921 to 30th July 1921 is treated as privilege leave.

71. The privilege leave granted to M R. Ry. K. S. Ramiah, Ranger V grade from 5th to 29th July is extended by 5 weeks.

SIXTH CIRCLE :—

72, (4—6—21) The combined leave for 5 months and 21 days granted to M. R Ry, M. N. Raman Pillai is extended by three weeks.

73. (8—8—21) Mr. J. A. Aranha, Ranger I grade is granted combined leave from 19—11—20, privilege leave for 3 months and furlough on average salary for 1 month and 18 days.

M. R. Ry. K. L. Govindakrishna Ayyar, Ranger VI grade is granted privilege leave for two months with effect from 1—7—1921.

74, 20—6—21 The following transfers of Rangers are ordered:—

(1) M. R. Ry. A. Nicholas, Range Officer, Ootacamund to Coondapur range. To join on relief.

(2) M. R. Ry. A. Swamikutti, Range Officer Nilambur to Ootacamund range. To join as soon as possible and relieve Mr. A. Nicholas.

(3) Mr J. S. Rowland, Range Officer, Amarampalam to Nilambur range. To join on relief.

(4) Mr. K. Kunhiroyan, special duty Ranger Nilambur to Amarampalam and relieve Mr. Rowland.

(5) Mr. B. Sambamurthi Ayyar, Ranger, Coondapur to Segur range Nilgris District. To join on relief by Mr- A, Nicholas.

75. K. Raghavan student, Madras Forest College, on completion of the course to Nilambur range on special duty. To relieve S. V. Doraiswami Ayyar, Supernumerary Ranger.

(2) S. V. Doraiswami Ayyar, Supernumerary Ranger to charge of Chedleth Range, Wynaad. To join on expiry of 2 months' privilege leave granted to him.

76. The following arrangements are made to fill up vacancies in the Ranger's cadre with effect from *1st May 1921*-

* * *

A. C. Jesudasan Pillai from VI grade to V grade.

* * *

M. P. Subbayya from VI grade sub protem to VI grade permanent:

* * *

K. Appayya, from VII grade permanent to VI grade sub protem.

77. 20—6—21. The following promotions and reversions of Rangers are ordered with effect from 1—3—1921 consequent on the restoration of Ranger M. R. Ry. B, Gurusami Ayyar from the III to I grade on appeal and the confirmation of M, R, Ry. V. Narayana Ayyar, Ranger I grade as Extra Assistant Conservator of Forests,

(a) REVERSIONS

M. R. Ry. C. Sankunni, Ranger I grade to be Ranger II grade permanant and Ranger I grade sub protem.

* * *

(b) PROMOTIONS.

To I grade permanent.

M. R. Ry. C. Sankunni.

* * *

To VI grade permanent.

K. G. Monappa.

78. 6—7—21. Mr. T. I. Chakko, III grade is dismissed from service with effect from the date or which he was suspended.

Advertisements.

The following is a list of timber species required for the Gass Museum. Such of them as are procurable may be sent to the Principal *together with botanical specimens pertaining to each species and a sample of bark about 8″ square.*

The long panels should be as broad as available, 6 ft long and 3″ thick. The short panels 2 ft long and I″ thick. (breadth, maximum available.)

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Hardwickia binata

Albizzia stipulata
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Chickrassia tabularis
Carallia integerrima
Dillenia indica
Diospyros tomentosa
Diospyros paniculata
Diospyros ebenum
Dalbergia sissoo
Erythroxylon monogynum
Gmelina arborea
Gluta travancorica
Holoptelea integrifolia
Hydnocarpus Wightiana
Hereteria papilio
Litsaea zeylanica
Machilus macrantha
Michelia Champaca
Premna tomentosa
Sterculia fœtida
Sterculia villosa
Sterculia guttata
Stereospermum chelonoides
Tetrameles nudiflora

* * *

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2. Volume 6 for 1880 - 81.
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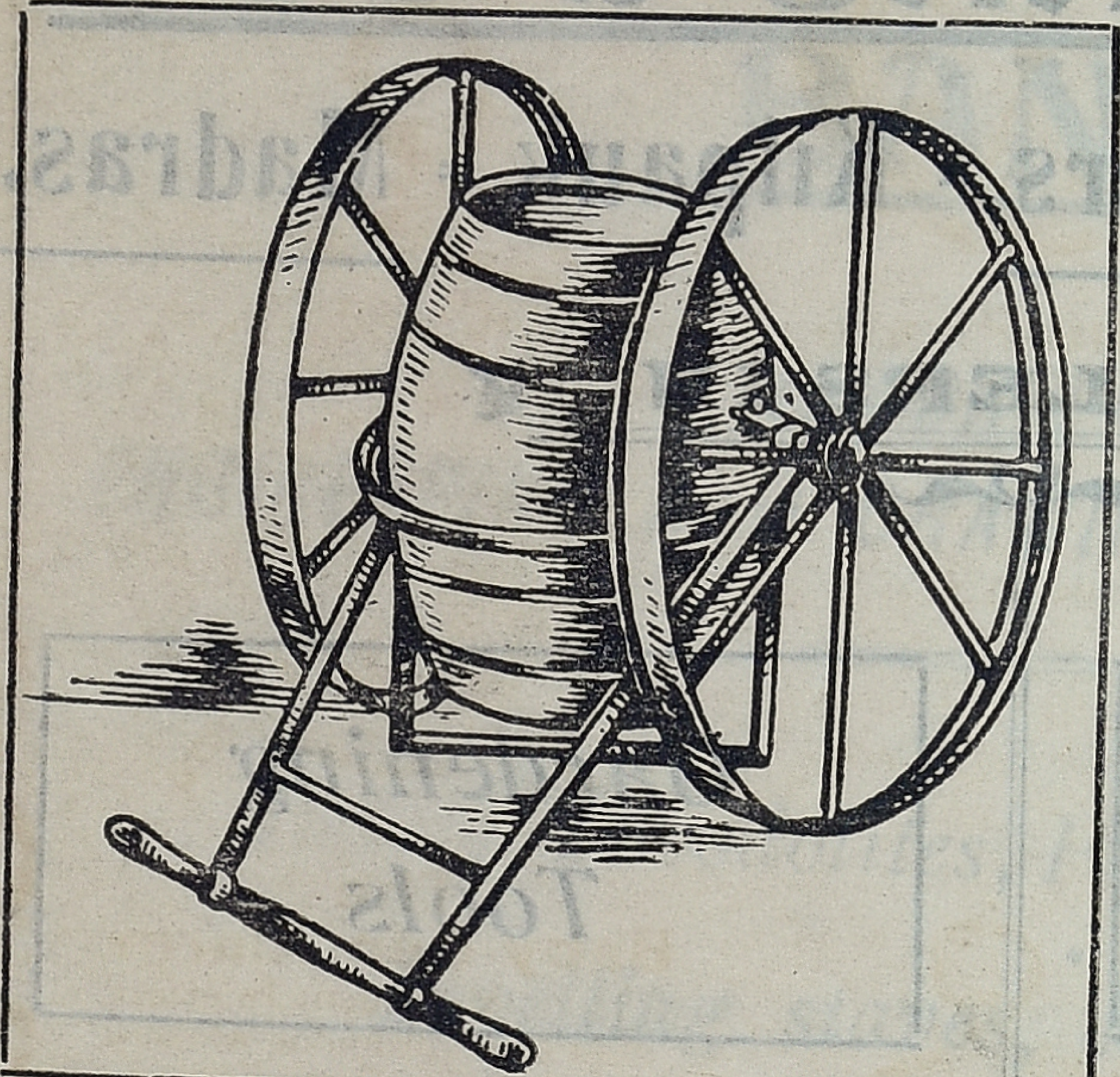

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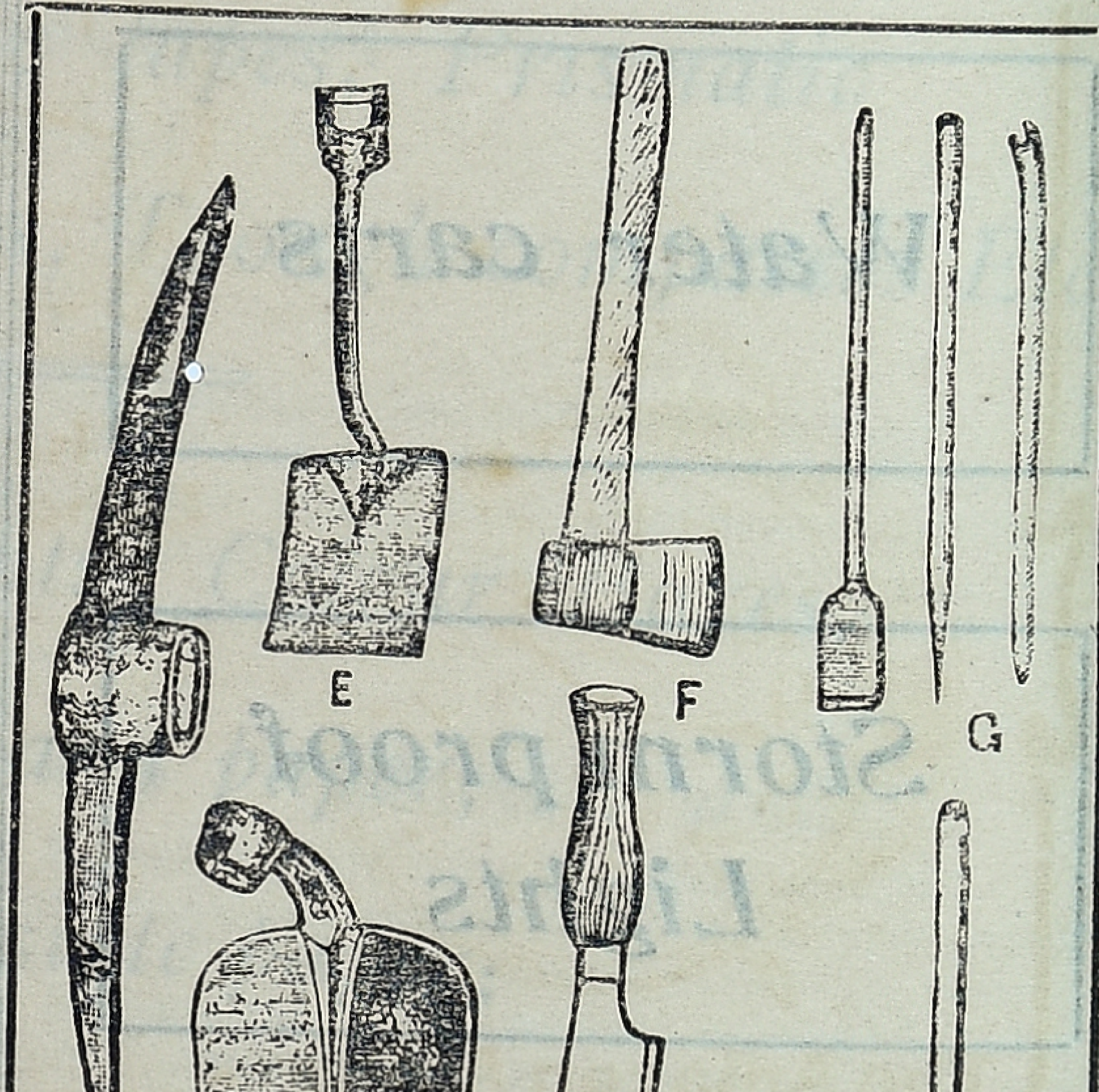

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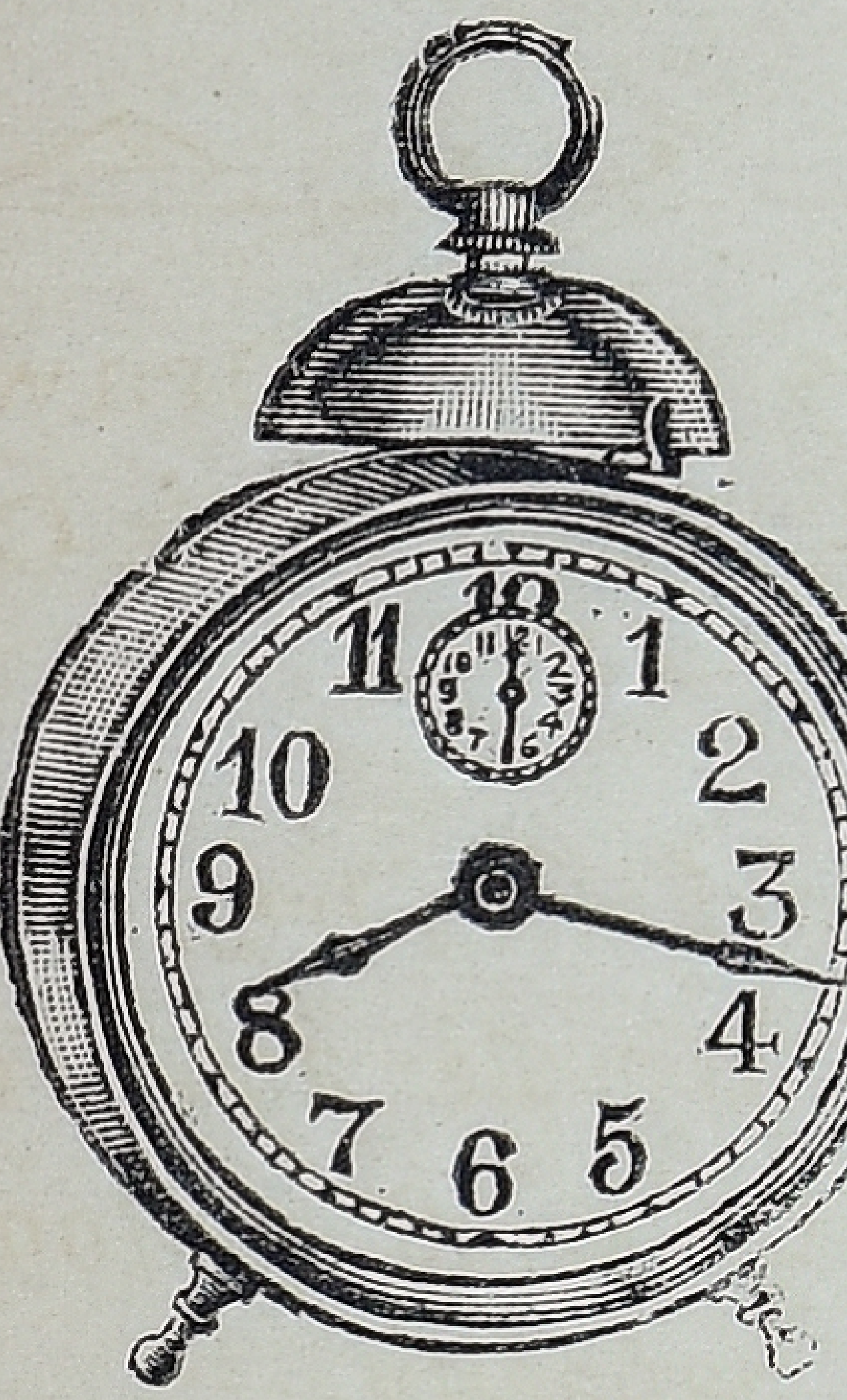

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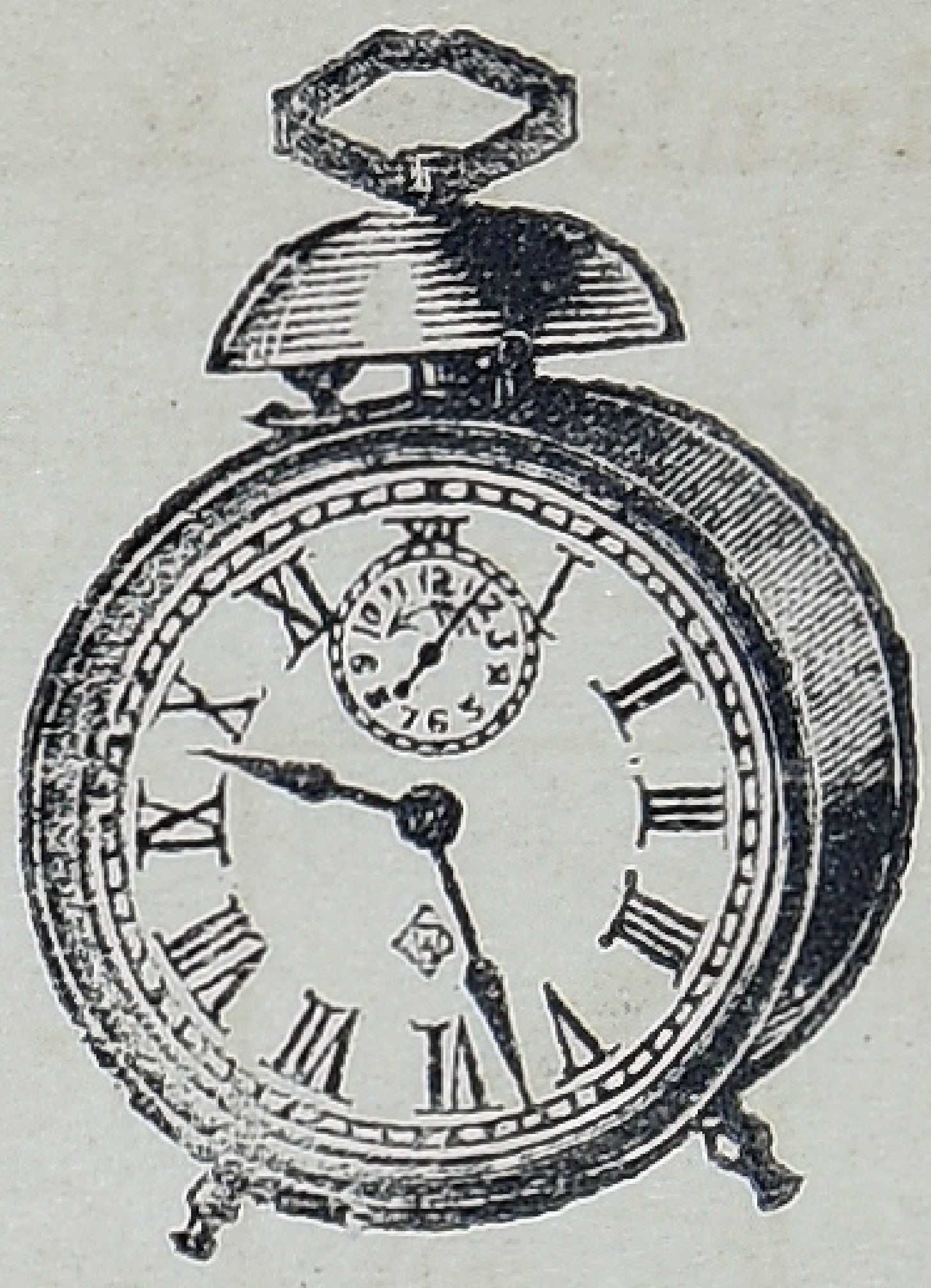

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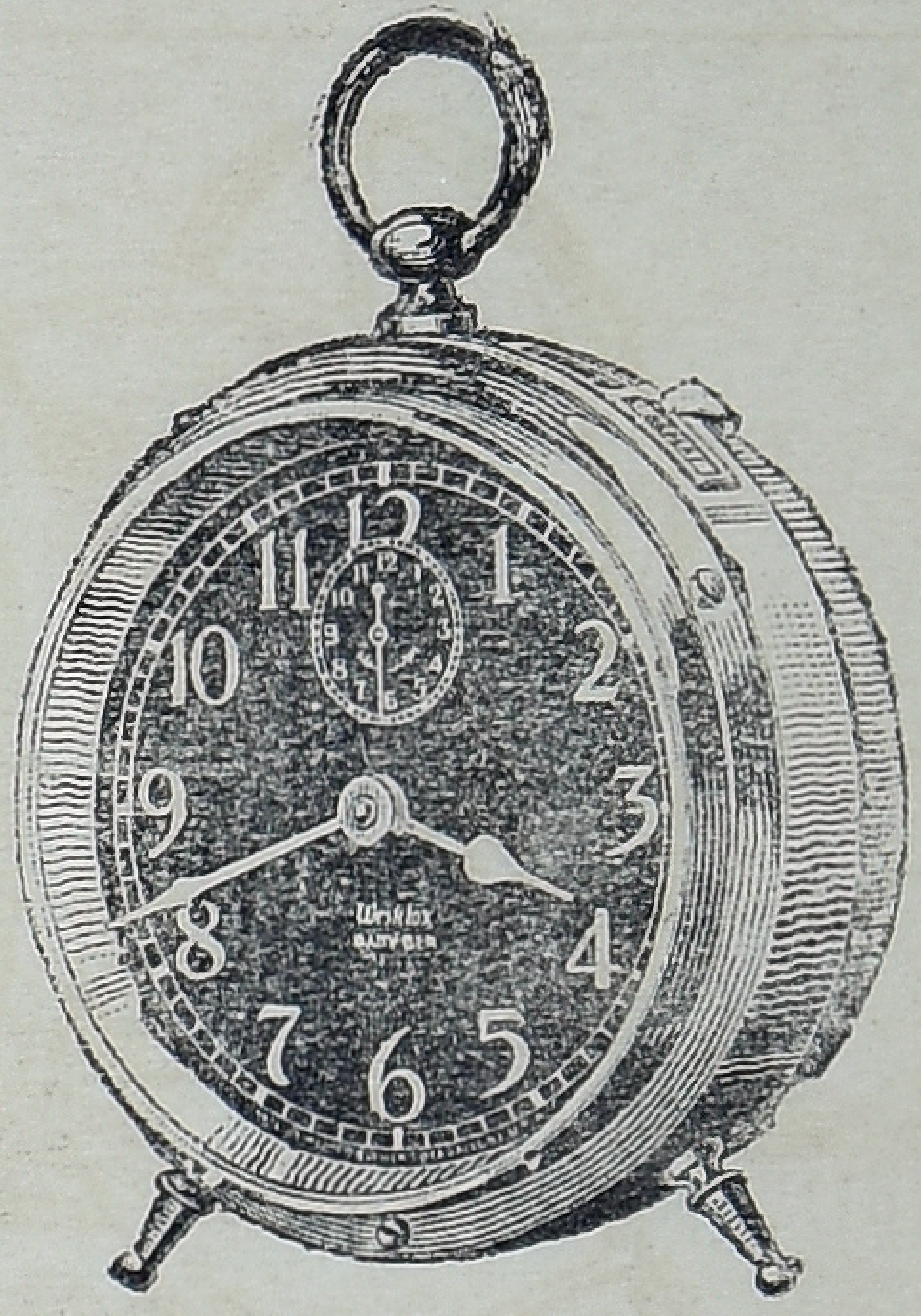

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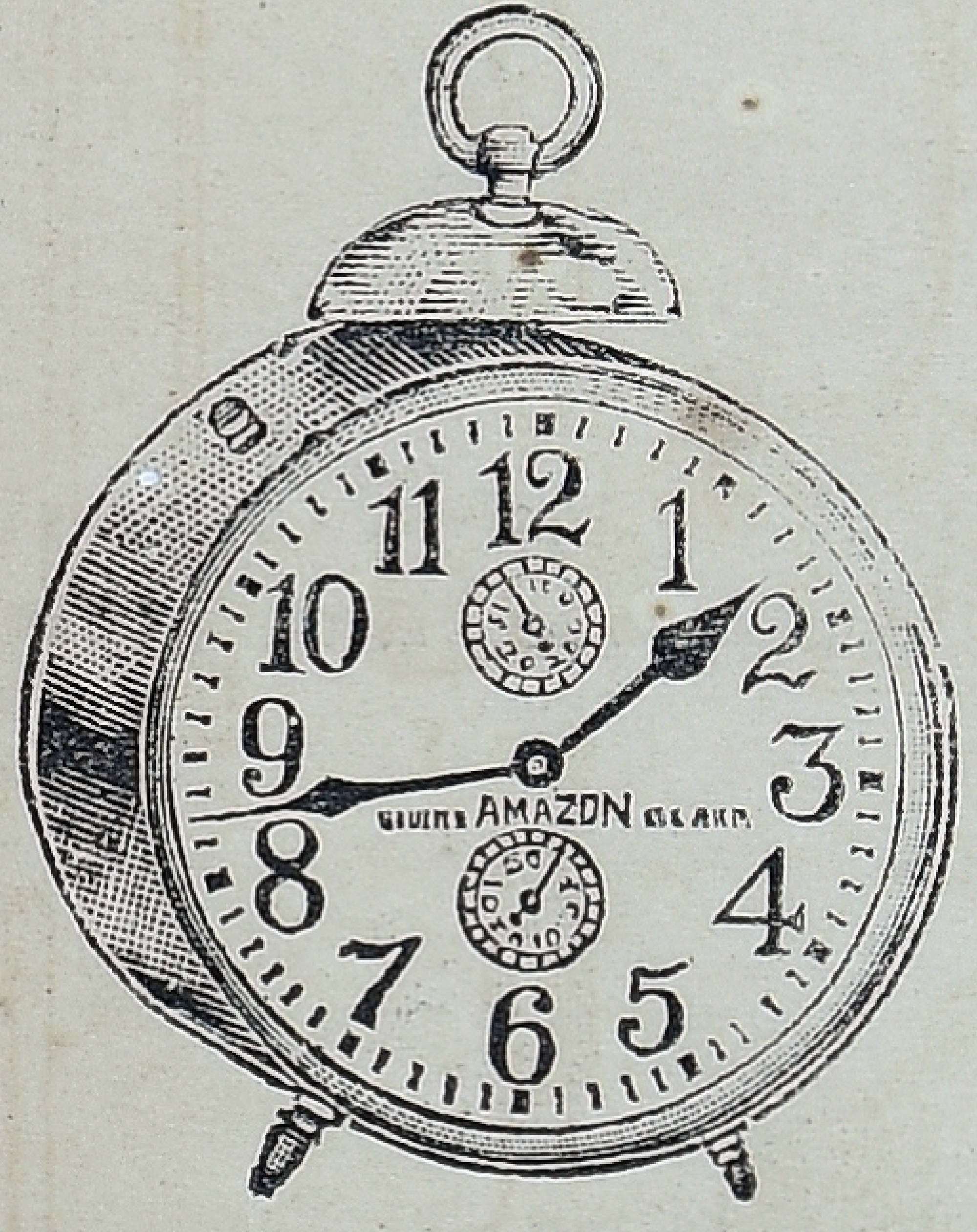

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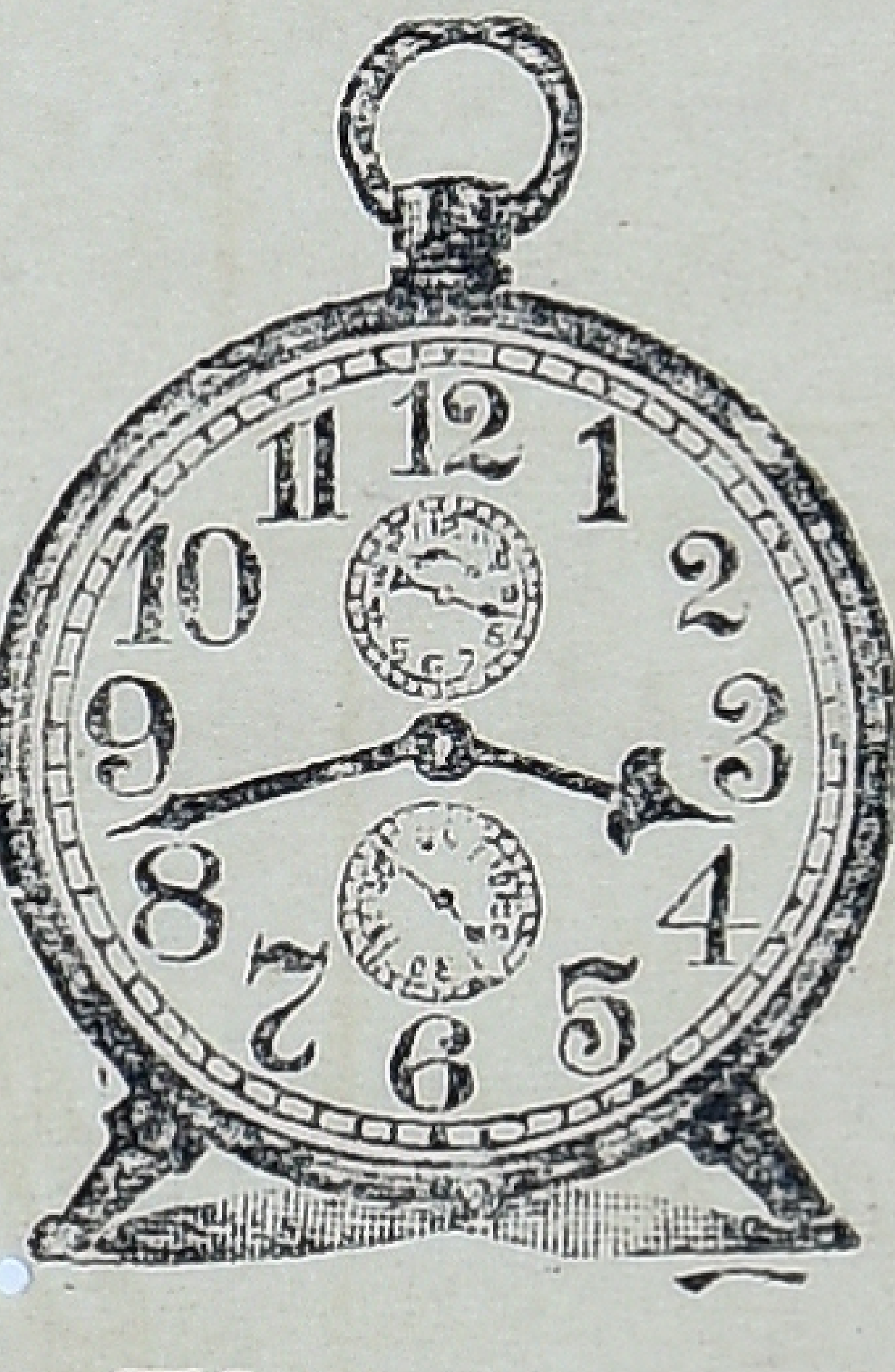

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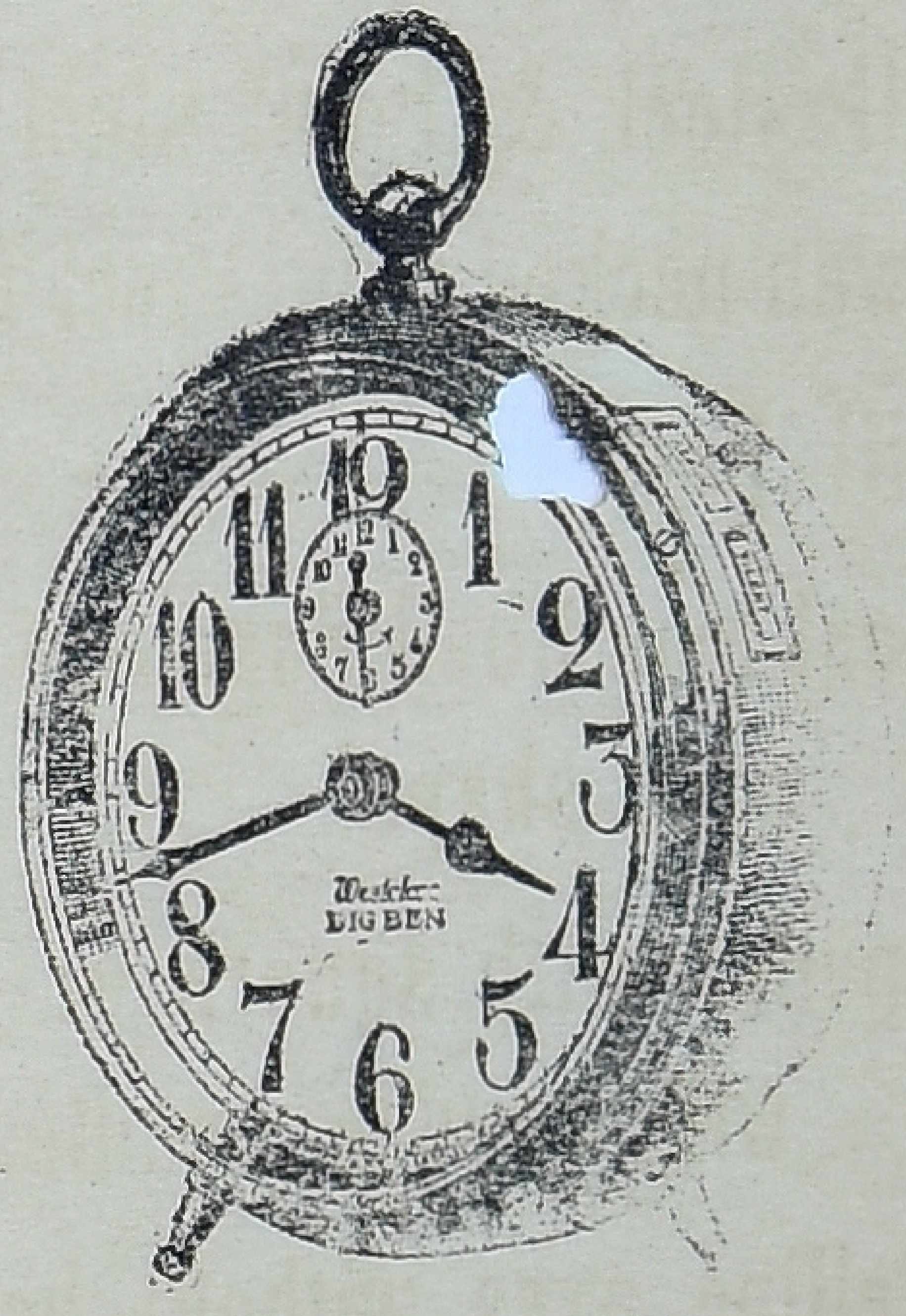

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